FOREWORD

In accordance with the Defense Planning Guidance, The Army submits its Transformation Roadmap, which outlines our Transformation strategy and details how Army Transformation supports sustained progress toward the attainment of the six critical operational goals for Transformation stated in the 2001 Quadrennial Defense Review. It describes steps The Army is taking to create a culture of innovation that seeks to exploit and shape the changing conduct of military competition. The Army will explore new combinations of concepts, people, organizations, and technology in order to produce new or increased capabilities, protecting our Nation and the Joint Force against asymmetric threats. In short, we seek to institutionalize Transformation as a continuous process. Army Transformation, as part of the Department of Defense's transformation, requires a holistic approach to meeting the demands of the evolving National Security Strategy. As such, it includes a fundamental review of how The Army organizes, staffs, equips, trains, and develops its leaders to execute its doctrine in the 21st century. Transformation is fundamentally about changing the way we deploy, fight, sustain, and use information. Transformation will provide new capabilities to the Joint Force Commander to enable the Joint Force to assure our allies and friends, dissuade military competition, deter aggression, and, if necessary, decisively defeat aggressors.

Army formations will become even more strategically responsive, full spectrum capable, modular, and scalable. They will leverage the power of information to conduct distributed, simultaneous operations, exploiting the full range of Army, Joint and coalition capabilities to defeat the enemy. Army formations will be completely interoperable, enabling and leveraging other Service capabilities. The Army will provide headquarters capable of commanding and controlling Joint Task Forces, Joint Forces Land Components, or serving as the controlling headquarters for Army Forces. The Joint Force Commander will be able to employ Army formations to strike directly and immediately at enemy centers of gravity with a full range of effects, ranging from the control of people and territory to the destruction of enemy forces. This information-enabled force will leverage reach capabilities to multiply the combat power of deployed forces while reducing their logistical demand and footprint. We are Transforming in comprehensive and profound ways that will produce the most strategically responsive, dominant land force of the 21st century–decisive across the entire spectrum of operations.

The attacks of September 11 provide compelling evidence that the strategic environment remains dangerous and unpredictable. The emerging strategic environment of the 21st Century demands land forces that are responsive, deployable, versatile, agile, lethal, survivable, and sustainable across the full range of military operations. It reinforces the demand for Army Transformation. The Army has moved out, but much work remains. Ultimately, the success of Army Transformation will depend on our people. They remain the centerpiece of our formations, as they have for over 227 years. Our trained, educated, disciplined, tough, and dedicated Soldiers will master the challenges of the 21st century, institutionalize Transformation, and implement the Army Vision.

Eric K. Shinseki
General, US Army
Chief of Staff

Thomas E. White
Secretary of the Army

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Executive Summary

Purpose

The Army Transformation Roadmap describes Army Transformation and describes how Army Transformation fits within the larger framework of Department of Defense transformation. The Army's contribution to national security is prompt and sustained land dominance across the range of military operations and spectrum of conflict. Simultaneously, the document addresses the 2001 Defense Planning Guidance (DPG) requirement for each service to, "prepare and update annually for review by the Secretary of Defense a Transformation Roadmap." The purpose of the Roadmap is to specify timelines in which we will develop Service-unique capabilities necessary to meet the defense strategy and DoD's critical operational goals for force Transformation. Concurrent with our sister Services' roadmaps, we will also address resource requirements to fund Transformation through the Future Years Defense Plan (FYDP).

Army Transformation in Context

Army Transformation focuses on delivering land power capabilities to meet 21st Century strategic requirements, and rests squarely within emerging Joint operational concepts and capabilities. More than building and procuring new systems and platforms, Army Transformation combines advanced technologies, organizations, people, and processes with concepts to create new sources of military power that are more responsive, deployable, agile, versatile, lethal, survivable and sustainable. The Army will integrate its development efforts for these new capabilities with those of the Joint community, and assess them through Joint and Service experimentation. This process will produce increasingly responsive capabilities and dominant formations that are modular and scalable.

We are also transforming our institutions and business practices to produce these capabilities and to release resources for Transformation. The Army is consolidating its management of information, installations and contracting to provide more effective and efficient support to the warfighter. We are reorganizing the Headquarters, Department of the Army and our Major Army Commands (MACOMs) to enable the Army to accelerate the development of our human capital, as well as new enabling technologies for Transformation. Together, these changes not only free up personnel, money and time for Transformation, but also are an integral aspect of Transformation itself.

The emerging security challenges of the 21st century and the need to respond more rapidly and decisively across the full spectrum of operations requires that The Army transform itself. The attacks of September 11, 2001 provide compelling evidence that the strategic environment remains dangerous and unpredictable. Geopolitical trends and their accompanying phenomena presage a future operational environment wrought with diffuse threats that are harder to detect. However, the potential threat environment, the events of September 11, and America's subsequent declaration of a lengthy war on terrorism unmistakably demonstrate that Defense Transformation in general and Army Transformation specifically, are imperative.

DoD Transformation Goals and Army Transformation within the Joint Fight

Army forces and formations will continue to provide unique capabilities in support of the six Critical Operational Goals for Defense Transformation. These operational goals are not distinct, stand-alone goals or mission areas. Rather, they are mutually supporting and interdependent from a strategic and operational perspective. Section III highlights in general, and Annexes A through F in detail, specific Army capabilities that will enable DoD's Critical Operational Goals.

Building Combat Power Over Time—Army Transformation Timelines

The Army is taking a phased approach to developing its capabilities over time. In the near term, we are focusing on fielding the Stryker Brigade Combat Teams, "digitizing" the Legacy Force by creating a common operating picture and enabling the heavy force to harness the power of information, while designing the Objective Force. In the mid-term, we will complete the fielding of Stryker Brigade Combat Teams and the digitization of the Legacy Force, and begin fielding the Objective Force. In the far term, we will continue fielding the Objective Force, even while seeking the next "leap ahead" in our capabilities. The Army views Transformation as a continuous process; we will never cease in our efforts to set and dominate the terms of military competition.

Maintaining Momentum - Managing Change and Balancing Risk

We have already made hard choices to balance the four kinds of risk stated in the DPG while executing Transformation. The Army has had to balance operational risk in its modernization and recapitalization of selected Legacy Force units. The Army eliminated and restructured several programs, an action that allowed us to reinvest funds toward Transformation, thus mitigating future risk. Over the past decade, The Army cut deeply into its force structure in anticipation of enhanced combat power realized through digitization, subsequently generating additional capital for Transformation. To mitigate the operational risk to current readiness, The Army has continued full funding for OPTEMPO.

The Army Transformation Campaign Plan

The Army Transformation Campaign Plan (TCP) is the blueprint for integrating The Army Vision's major efforts leading towards the Objective Force. It contains the level of detail required to synchronize Army-wide Transformation efforts, integrate those efforts with Joint and Department of Defense efforts, and maximize the effectiveness and efficiency of those efforts. Concurrent with synchronization, the plan's design allows maximum flexibility and adaptability for innovation and initiative throughout The Army. The Transformation Campaign Plan concentrates our collective efforts on achieving a common goal: The Army's Transformation objective – a strategically responsive and dominant force at every point on the spectrum of operations. The Transformation Campaign plan is a living document, reflecting the continuous and dynamic nature of Army Transformation.

Conclusion

The environment of the 21st Century demands a transformed Joint Force. We cannot know with any degree of certainty who will threaten the United States and its vital interests, or how our adversaries will prosecute those threats. What we do know is that if we wait until these threats emerge to construct our capabilities, it is already too late. The war on terrorism, homeland security, and the need to maintain readiness all add impetus to Army Transformation. Transformation will produce a new kind of Army, a capabilities-based ground force that will dominate at any mission across a broad spectrum of operations. While the future remains uncertain, the need for our Nation to have the best trained, best led, and best equipped Soldiers on the ground will not change.

The Army Transformation Roadmap is a living document, intended to reflect the dynamic nature of Army Transformation. As innovative ideas emerge from within and outside of The Army, as breakthroughs in science and technology occur, as concepts prove their worth through experimentation, The Army will exploit them. In turn, the Army Transformation Roadmap will reflect this added fidelity in succeeding years.
Within the dictates of the National Security Strategy and National Military Strategy, and guided by the laws and traditions of the Republic, The Army will continue to shape the environment of future conflict. Grounded in Joint doctrine, The Army will fight and win the Nation's Wars. In peace, war, and diplomacy, Army Soldiers and their leaders stand ready to serve the Nation as they have for the last 227 years.

Section I. Purpose of the Roadmap

The Army Transformation Roadmap outlines how Army Transformation supports Department of Defense Transformation efforts. We submit it in accordance with the guidelines issued in the Defense Planning Guidance for Fiscal Years 2003 through 2007. The DPG requires each service to, "…prepare and update annually for review by the Secretary of Defense a Transformation Roadmap." The purpose of such a roadmap is to specify actions and timelines to develop Service-unique capabilities in support of DoD's six critical operational goals for force Transformation.

The Army defines Transformation as a continuous process that creates a culture of innovation, which in turn seeks to exploit and shape the changing conduct of military competition. The Army will explore new combinations of concepts, people, organizations, and technology in order to produce new or increased capabilities, and protect against asymmetric threats. Thus, The Army's Roadmap describes the steps The Army has already taken, and will continue to take that will institutionalize Transformation.

The Roadmap describes how the evolving geostrategic environment of the 21st Century creates a compelling need for Army Transformation. The Roadmap addresses the management processes put into place that keep our Transformation on course. Further, it discusses some of the tough fiscal decisions that we have already made and will continue to make in order for us to transform to a more strategically responsive, full spectrum force. In short, it tells the Army's Transformation story while describing how Army Transformation directly supports the Joint fight. The Transforming Army will provide a dominant land force to the JFC, both today and in the future, while demonstrating The Army's support of Defense Transformation.

Section II. Army Transformation in Context: Meeting the Strategic Requirements for the 21st Century

America remains the most potent military power in the world, and The Army provides the land component of that capability. Stressors exist around the globe, however, that challenge that pre-eminence. The fight against international terrorism has overshadowed, not eliminated, other tensions. North Korea remains both a concern and a question mark. Tensions

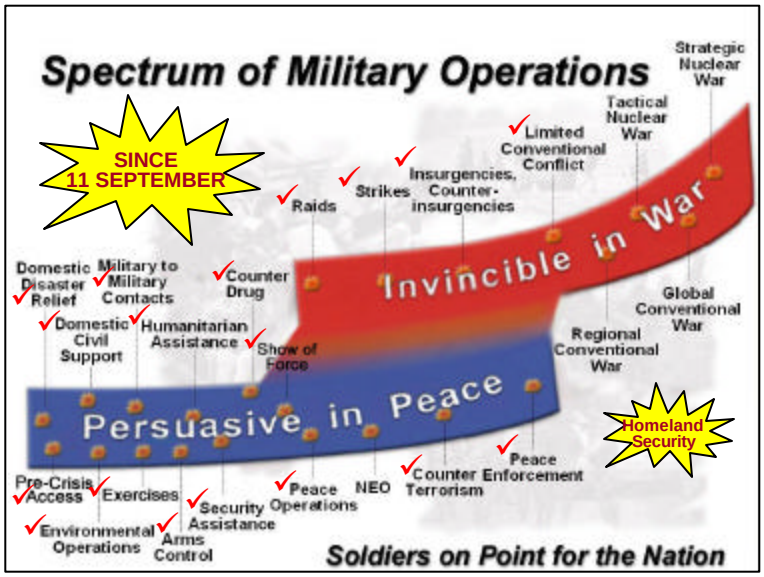

Figure 1: The Spectrum of Operations

between India and Pakistan persist even as the latter supports our war on terrorism. Rumblings between China and Taiwan resonate throughout Asia with growing frequency and without a clear way ahead. The security environment over the next twenty-five years will include complications resulting from a variety of threats all of which will compound our challenges. Among these are transnational terrorism, organized crime activities that include illicit drug transactions and the trafficking in women and children, the sales of illegal arms, and proliferation of weapons of mass destruction. Added stressors include problems arising from population trends, ethnic and religious dissention, and conflicts arising from shortages of resources. Proliferated by aggressive ideologies, these phenomena presage a future operational environment wrought with diffuse threats that are harder to detect. Although the likelihood of major conflicts between powerful states will decrease, conflict itself will likely change in character and increase in frequency.

The role of our military forces is to assure allies and friends of our commitment, dissuade military competition, deter potential adversaries and, if deterrence fails, to fight, and win decisively. The Army supports these goals through peacetime engagement, crisis management, deterrence, and by providing the rapidly deployable, overwhelming combat power that enables such capabilities. The Army responds to a wide range of missions arrayed along the spectrum of military operations.

A. The Strategic and Operational Environment—A Compelling Need for Transformation.

Army Transformation responds to the evolving strategic and operational environment. That environment not only creates the compelling need for Transformation but also shapes it. Overall, the geostrategic environment demands Joint Forces that are vastly more responsive and dominant. At the same time, ongoing requirements such as the War on Terrorism, as well as the ever-present possibility of major war, place limitations on the pace of Transformation. Nonetheless, The Army is not content to keep pace with an evolving paradigm of warfare. Instead, we seek to master it through aggressive, innovative Transformation of our concepts, organizations, technology, and people. Transformation addresses every aspect of The Army including its operational forces, its institutions, and its culture. The Army TCP provides the directional guidance for combining these different aspects of Transformation into a coherent, integrated whole.

Certain features and trends of the security environment highlight critical operational challenges that the Nation's armed forces will need to master in the future. The 2001 Quadrennial Defense Review identifies six such trends.

- ***Diminishing protection afforded by geographic distance*** in turn requires improved strategic responsiveness
- ***Increasing threats to regional security*** require a multidimensional capability to respond promptly and decisively and resolve crises across the full spectrum of operations

- ***Increasing challenges and threats emanating from the territories of weak and failing states*** require forces able to proactively shape the security environment
- **Diffusion of power and military capabilities to non-state actors** require full-spectrum forces capable of finding and decisively defeating adversaries wherever they locate or seek sanctuary
- ***Increasing importance of regional security arrangements*** require US capabilities to shape the security environment, allowing us assure friends and allies, deter aggression and coercion, in a context of enhanced interoperability
- ***Increasing diversity in the sources and unpredictability of the locations of conflict*** requires Joint Force capabilities that are multidimensional, full spectrum, rapidly deployable, employable and decisive in all terrain, weather and climate conditions

These geopolitical, domestic, institutional, and emerging military-technical trends all point to significant strategic challenges for The Army. As the QDR noted, "to secure US interests and objectives despite the challenges of the future security environment is the fundamental test for US defense strategy and US Armed Forces." These challenges emphasize the continuing utility of landpower even as they require its Transformation.

B. Defense Strategy and Requirements

Within the context of this security environment, the Defense Planning Guidance (DPG) FY 2003-07 and the 2001 QDR articulated a new Defense Strategy. Furthermore, the Joint Strategic Capabilities Plan (JSCP) provides guidance to the Combatant Commanders and Service Chiefs with respect to specific tasks and missions required to execute the Defense Strategy.

QDR US Interests and Defense Strategy

Consistent with the existing NSS and validated strategic assessments and analyses, the QDR identified three broad "enduring national interests," and related subordinate interests (from which DoD developed the Defense Strategy) based on four defense policy goals. DoD also identified seven interconnected strategic tenets which support the defense policy goals. As the QDR notes, "it is only through careful attention and commitment to each of these tenets that the defense policy goals will be achieved. These tenets comprise the essence of our US defense strategy."

Defense Strategic Tenets

- Managing Current and Future Risk
- Taking a Capabilities-Based Approach
- Defending the United States and Protecting US Military Power
- Strengthening Alliances and Partnerships
- Maintaining Favorable Regional Balances
- Developing a Broad Portfolio of Military Capabilities
- Transforming Defense

Figure 2: Strategic Tenets

Force-Sizing Construct

Consistent with the enduring national interests and the defense strategy goals, the Defense Strategy explicitly recognized "the need to provide over time a

richer set of military options across the operational spectrum." Accordingly, the 2001 QDR established a new force-sizing construct aligned with four general mission areas:

- Defend the United States (the enduring first priority)
- Deter aggression and coercion forward in critical regions (Europe, Northeast Asia, the East Asian littoral, and the Middle East/Southwest Asia)
- Swiftly defeat aggression in two overlapping major conflicts while preserving for the President the option to call for a decisive victory in one of those conflicts - including the possibility of regime change or occupation
- Conduct a limited number of smaller-scale contingency operations

The QDR also notes that DoD must maintain sufficient force generation capability and strategic reserve to mitigate current operational risk. DoD guidance requires the Services to identify the capabilities necessary to accomplish each of the four mission areas. Thus, while DPG 03-07 rightly mandates a Transformed Army that is both responsive and dominant, it also implicitly constrains the pace of Transformation.

Achieving the defense policy goals and executing the Defense Strategy requires dominant land force capabilities across the full operational spectrum from peace to war. The Army, through its statutory functions, provides trained and ready land forces that will meet the Defense Strategy Criteria for employment by Joint Force Commanders.

C. Implications for the Army

The Emerging Capabilities Gap

Today, The Army is one-third smaller than the Cold War force, but our operational tempo has increased dramatically. Moreover, the lower intensity but higher frequency operations point up a shortfall in our force structure, one readily apparent when Iraq attacked Kuwait in 1990. At that juncture, our heavy divisions, well suited and forward stationed for a central European war, took time to deploy to Southwest Asia. Twelve years later, we remain hard pressed to deploy these magnificent heavy formations to all of the places that request our help. Conversely, our light forces, the finest light infantry in the world, can deploy quickly but lack the lethality, survivability, and staying power of heavy forces. As a result, there is a "capabilities gap" between our heavy forces that are well equipped for war but difficult to deploy strategically, and our light forces that can respond rapidly but lack staying power against heavy mechanized forces. What we require is greater lethality, survivability, and deployability all across the force. These capabilities will also increase our versatility and agility for full-spectrum operations. Our forces must bridge the gap we have meeting full-spectrum operations--those that require the transition from military operations other than war to warfighting without a loss in momentum. With each passing year, our condition as a force becomes a greater

liability. In time, that liability will become an unacceptable risk, a condition that will force us to undertake change on the eve of battle.

Taken together, the demands of the strategic environment and the realities of The Army's current condition necessitate profound change. We recognize our future shortcomings and we know that we have real operational deficiencies today. The Army must transform.

The Army Vision

In 1999, The Army charted a direction for the 21st Century, a vision that built on the work of our predecessors but looked to an Army that would better meet the challenges of the strategic environment. The Army Vision "Soldiers on Point for the Nation…Persuasive in Peace, Invincible in War," outlines the concept for transforming the most respected Army in the world into a strategically responsive force that is dominant across the full spectrum of operations. Achieving the Vision will ensure that The Army fulfills its strategic responsibilities, continuously meeting the requirements of the National Military Strategy (NMS). The Army Vision is much more than equipment. It consists of three interdependent elements: People, Readiness, and Transformation.

People

The Army is people, Soldiers –Active, Guard, and Reserve – civilians, retirees, veterans, and families. People are central to everything we do and the Soldier remains the centerpiece of our formation. Institutions do not transform--people do. Platforms and organizations do not defend the Nation--people do. Units do not train, they do not stay ready, they do not grow and develop leaders, they do not sacrifice and they do not take risks on behalf of the Nation--people do. Without highly skilled, competent, dedicated people, it does not matter how lethal our weapons are or how strategically responsive our formations grow. The Army is People.

Readiness

The Army is the force upon which the Nation relies most heavily to perform the full spectrum of military operations. On any given day, we have more than 124,000 Army personnel forward stationed or deployed around the world. Troops in Afghanistan, Korea, and Kosovo, in the Sinai and Bosnia, remain heavily committed to meeting the requirements of both the National Security Strategy (NSS) and National Military Strategy (NMS). Soldiers and civilians stationed stateside perform the critical role of keeping warfighting formations ready for worldwide employment today.

Since 1989 and the fall of the Berlin Wall, The Army has deployed ready forces 37 times in response to Presidential and Secretary of Defense directives. Some of these deployments were brief while others have evolved into ongoing force commitments for our magnificent Soldiers. The Army stayed behind in Kosovo for three years, Bosnia for seven, the Sinai for twenty, Korea for fifty-two, and Europe for fifty-eight. Each of these missions further constrains the resources The Army requires to maintain readiness throughout the force.

The Army supports the operational requirements of the unified combatant commands. The combatant commanders expect The Army, on short notice, to provide robust, ready, disciplined formations with which they can fight and win major combat operations in their regions. They also expect Army forces to engage in partnership exercises and military-to-military contacts within their assigned areas of responsibility. Our Soldiers are working hard toward full readiness, and we owe them the resources necessary to meet the warfighting combatant commanders' expectations.

A Few Rules of Thumb

Warfighting is complex, but the historical lessons of the military art, the principles of war, the tenets of Army operations, and our warfighting tactics, techniques, and procedures – all the fundamental imperatives – boil down to several rules of thumb applicable at every level of war. First, we win on the offense; we must be able to defend well, but you win on the offense. Next we want to initiate combat on our terms – at time, in a place, and with a method of our own choosing – not our adversary's. Third, we want to gain the initiative and retain it for as long as possible – and never surrender it unless forced to. Fourth, we want to build momentum quickly. And, finally, we want to win – decisively.

These rules of thumb require commanders to master transitions, yet we must remain cognizant of the danger posed by those transitions. Moving from peacekeeping to warfighting, from the offense to the defense and back, saps operational momentum. Mastering transitions is integral to setting conditions for winning decisively.

Military forces that master transitions provide strategic flexibility to the Nation. During Operation Desert Shield, we were fortunate that Iraq's lack of immediate action afforded US forces a six-month delay that allowed repositioning of our forces to Southwest Asia and re-equipping it for a decisive win. The transition went uncontested. Without that pause, we might have had different outcomes. In today's strategic environment, we must keep the option to initiate combat on our terms, retain the initiative, build momentum quickly, and win decisively. The Army must transform in order to develop and field a force that possesses those needed characteristics.

Transformation

The third element of The Army Vision addresses Transformation. The Army must transform itself into a force capable of dominating at every point on the operational spectrum. The Army's Transformation Strategy will create an Objective Force that is more responsive, deployable, agile, versatile, lethal, survivable, and sustainable than the present force. These characteristics stretch across all of The Army's core competencies, including prompt response,

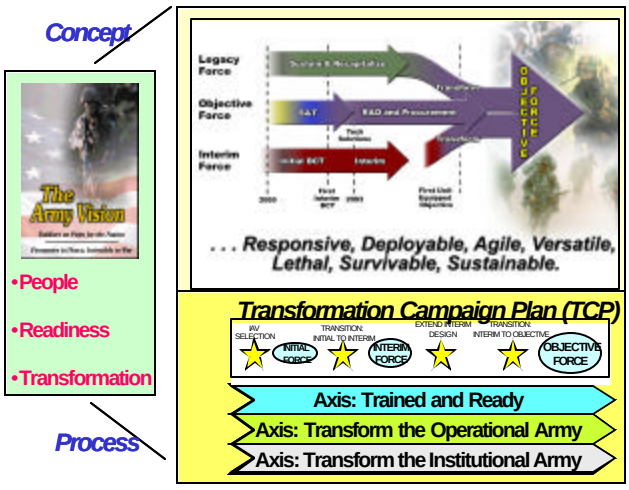

Figure 3: From Vision to Action

forcible entry operations, and sustained land dominance.

The Army intends to be able to deploy a combat capable brigade anywhere in the world in 96 hours after liftoff, a warfighting division in on the ground in 120 hours, and five divisions into theater in 30 days, operating as integral components of the Joint Task Force. These capabilities add significantly to the Nation's ability to credibly and rapidly deter aggression. We are not there yet; significant technological challenges remain. We are, however, asking the right science and technology questions to obtain answers for these operational imperatives. The Army has moved out.

D. Transforming Concepts and Capabilities – Supporting a 21st Century Defense Strategy

Army Transformation is about changing the way we deploy, fight, sustain, and use information that will make us more strategically responsive and dominant across the spectrum of operations. We will design and structure Objective Force formations for rapid response and deployment, including the capability to conduct operational maneuver from strategic distances employing combined arms in decisive operations. We will exploit the full potential of forward deployed forces and pre-positioned stocks, thereby allowing Objective Force formations to respond rapidly to crises anywhere in the world. Modular, fully interoperable Objective Force units will provide the Joint Force Commander with a capability to bypass choke points and enemy centers of resistance, to strike directly at tactical and operational targets, objectives, and adversary centers of gravity. Objective Force units will arrive immediately capable of simultaneous, distributed, and continuous day/night combined arms operations in all weather, and all terrain conditions. Attaining enhanced strategic responsiveness requires transforming our logistics concepts, organizations, technology and, most importantly, our mindset. The Army's transformation of its logistical support will allow it to provide the Joint Force with equal or greater logistical support even while substantially reducing its footprint. As an information-enabled force, Army formations will input to and leverage the Joint C4ISR network to enable it to see first, understand first, act first, and finish decisively. Objective Force formations will exploit the Joint Common Relevant Operating Picture (CROP) to achieve vastly greater decision superiority. Harnessing the power of information will enable Objective Force units to increase their lethality, precision, and survivability even while dramatically reducing their mass and "footprint."

Operational Concepts

Changes in the strategic context of military operations, the physical characteristics of the battlefield, and the nature of the threat inevitably condition the way the future US military will conduct operations. These changes affect not only The Army but also Joint and Combined forces as a whole. These operations will demand adaptive Joint operational concepts and architectures that enable seamless integration and synchronization of temporal domains and Joint capabilities in a distributed, multidimensional battlespace. The need goes beyond demanding truly Joint, fully accessible C4ISR architectures and capabilities with their resultant enhanced C2 and common battlespace awareness. Effective employment of US forces within this

strategic context demands coherent, full spectrum, multidimensional, Joint operational concepts, and the associated enabling functional concepts.

In accordance with DoD's first Transformation Pillar, that of strengthening Joint Operations, The Army continues to work directly with the Joint Staff, Joint Forces Command (JFCOM), and OSD's Office of Net Assessment in their ongoing concept development efforts. As the major land power component of the Joint Force, our focus is to ensure that emerging Joint operational concepts and architectures are capabilities-based, full spectrum, and multidimensional, presenting potential enemies with a panoply of threats that complicate his planning, divide his focus and increase his chances of miscalculation. Current Joint concept development efforts include:

- Joint Mission Area (JMA) (Strategic Topics, Dominant Maneuver, Precision Engagement)
- JTF C2--within the Joint Warfighting Capability Assessment (JWCA) process
- JFCOM Joint concept development
- Rapid Decisive Operations (RDO)
- Joint Operational Warfighting (JOW)

Development efforts also include several enabling concepts, and recently initiated Joint Staff efforts focused on a Joint Capstone Concept and a supporting Joint Operational Framework (JOF). As these efforts move towards a more synchronized, integrated concept development process, the Army will remain actively involved with each. Doing so requires integrating land power operational concepts where appropriate while ensuring that these Joint concepts embed Objective Force operational concepts and capabilities.

Capabilities

Army Transformation will provide the Joint Force with strategically responsive and dominant landpower that will enable it to achieve decisive outcomes in the Joint Fight. The Army's Objective Force will negate anti-access and area-denial strategies through its ability to deploy from multiple points of origin to multiple points of entry, in remote areas with unimproved infrastructure, and operate with a minimal logistical tail. The Joint Force Commander will have the ability to leverage the synergy between networked leaders, Soldiers, sensors, and weapons to develop the situation. Additionally, he will maneuver to positions of advantage on a distributed, non-contiguous battlespace, and either destroy the enemy or compel him to abandon his sanctuaries and face destruction by Joint and Army precision fires. The Objective Force will deter hostile acts against US forces through its speed, power, and precision, even while its agility and reduced footprint reduce its vulnerability.

The Objective Force will encompass more than the Future Combat System (FCS). Army Units of Action (UA) will comprise the tactical warfighting echelons of the Objective Force, filling the same role as today's brigade and lower echelons. These Units of Action will enable the Joint Force to achieve sustained land dominance, including capabilities for forced entry, vertical envelopment, and special operations. Units of action will finish decisively by closing with and destroying enemy forces through integrated fires and maneuver. The Objective Force's Units of Employment (UE) will direct major operations and decisive land campaigns in future Joint operations. Units of Employment will include fully interoperable Army headquarters will provide direction for Joint Operations as JTF Headquarters, JFLCC, or as ARFOR command headquarters. Army headquarters at all levels will be integral parts of any Standing Joint Task Force, providing the JFC with seamless Joint command and control, to include decision superiority, as well as the ability to manage space assets. Modularity and scalability will allow those headquarters to address the needs of the Joint Force. For instance, The Army is reviewing an Early Entry Command Post (EECP) concept to provide responsive, interoperable Joint command and control in the earliest phases of an operation. The EECP can be tailored to the needs of the early entry force while providing the full scale of operational capabilities, to include space and information operations. The Army's maneuver sustainment concept envisions enhanced logistics capabilities that facilitate increasingly agile operations, and responsive, predictive logistics that support a greater range and depth of operations. This sustainment concept addresses simultaneously reductions in stocks, number of personnel and facilities, and equipment in theater.

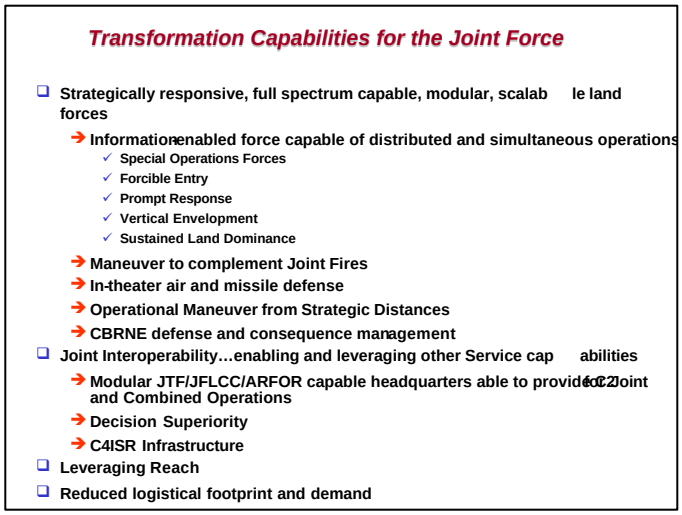

Figure 4: Army Capabilities for the Joint Fight

We will achieve much of this improvement in capabilities by leveraging space based capabilities and Joint, fully internetted C4ISR. As the largest user of space-based capabilities, The Army will continue to expand its capability for exploiting the intelligence, surveillance and reconnaissance, operational simultaneity, and assured communications provided by space. Finally, Army units will continue to provide much of the in-theater infrastructure for accessing and exploiting the common relevant operating picture (CROP) provided by Joint, Internetted C4ISR.

E. Harnessing Innovation—The Army Transformation Process

Creating a Culture of Innovation

The Army recognizes the need to create a culture of innovation, and we are beginning to address this need through the officer professional development system. Initiatives to nurture innovation are emerging from the top down and the bottom up. These provide evidence not only of The Army's commitment to this endeavor, but also of the favorable climate within today's Army towards innovation.

As part of its continuing efforts to improve cadet leader development, the United States Military Academy recently completed a comprehensive overhaul of its Cadet Leader Development System. A major aspect of this overhaul was improving the methods used to inculcate cadets with the habits of "thinking outside the box." The organizing principle of these reforms, which include course structure, teaching methods, and military training, is to force cadets to confront situations for which there are no "school solutions."

The Army is addressing the need for innovation in its professional schools as well through the adoption of "constructivist" teaching methods. As at West Point, these methods pose problems for students to solve and provide them tools with which to solve them, but do not provide a set method for doing so. Students and trainees develop their own solutions rather than following an established algorithm. The US Army Intelligence Center at Fort Huachuca has led the way with these initiatives in both its officer education programs and advanced individual training (AIT) for intelligence Soldiers. The captain's career course at Fort Leavenworth has also adopted these methods of instruction. Constructivist teaching has led to measurable results, allowing students to achieve the required level of mastery in a third less time than conventional methods. Students undergoing such training in the Army Battle Command System at Fort Lewis discovered and developed capabilities not inherent to that system's design.

At the Army War College, the Department of Command Leadership and Management teaches a Strategic Leadership course to The Army's mid-level leadership that emphasizes innovation as a requirement for solving The Army's problems. Students take a "Strategic Leader Development Inventory" that assesses, among other things, their capacity for innovation. Both the core and elective courses then nurture innovation by confronting students with real world problems for which The Army is seeking creative solutions.

The senior leaders of the Stryker Brigade Combat Team attended the Senior Leaders course, an intensive five-week course that introduced adaptive-thinking exercise methodology, and probed to stretch commanders and staffs skills in coping with a dynamic environment.

Realizing that it is not possible for senior leaders simply to mandate innovation, The Army has begun sending general officers to an Army Strategic Leaders Course. The course challenges established patterns of personal thought processes and encourages innovation in their subordinates and throughout The Army.

Taken together, these initiatives represent the beginnings of a synergy in which leaders at all levels emphasize the need for innovation and foster it within their organizations. Fostering innovation is also one of the yardsticks that The Army uses to measure organizational effectiveness, as outlined in AR 5-1, Total Army Quality Management. We also continually assess the extent to which our leadership climate supports innovation and we realize that much work remains.

Experimentation

In accordance with DoD's second pillar of Transformation, experimentation, The Army will rigorously evaluate both concepts and technology in Joint and Army experimentation. The Army Transformation Experimentation Campaign Plan leverages and integrates the work of Battle Labs, Research Labs, the TRADOC Analysis Center, the Center for Army Analysis and other agencies both inside and outside The Army. The Army Transformation War Game (ATWG) is the capstone Army effort. It is an annual event to test major aspects of the Transforming force, from organizational structure and deployment requirements to battlefield maneuverability and firepower. It incorporates politics, budget parameters, and the predicted capabilities of adversaries in realistic national and joint theater command structure. At a subordinate level, our current emphasis is on series of experiments, conducted primarily at TRADOC battle labs, to assist in the development of the Unit of Action. This series of experiments, conducted at the Mounted Maneuver Battle Lab at Fort Knox, using the Joint Virtual Battlespace (JVB) simulation, should culminate by the end of CY 2002.

The Army Transformation Experimentation Campaign Plan links Army Transformation, supports Objective Force development, and aligns with the JFCOM Joint Experimentation Campaign Plan. For example, The Army plans to use Millennium Challenge 02 to ensure that the design of its headquarters is fully compatible with the emerging requirements for Standing Joint Task Force headquarters (SJTF). The Army also plans to use this important Joint Experiment to gain insight into operations in a distributed, non-contiguous battlespace, integrating maneuver with precision engagement, and implementing reach operations for sustainment, among other objectives. Accordingly, The Army, working directly with the JFCOM staff, will ensure that Objective Force and Joint experimentation support land power operational concepts, capabilities, and technology innovations. A major focus area for the Army is the full integration of land power capabilities into JFCOM's experimentation pathways.

The Army conducts operational prototyping on a small but significant scale. With the Navy, Coast Guard, and Special Operations Forces, The Army is experimenting with high-speed sealift, including the Theater Support Vessel (TSV). Other examples include using leased, surrogate vehicles to inform the development of tactics, techniques, and procedures for the Interim Force. Another initiative is the organization of one company equipped with the Long Range Standoff Biological Detection System, a technology still very much in its infancy. Such efforts inform the further development of concepts, organizations, technology, and personnel as part of a continuing Transformation.

Army efforts in this sphere also include the digitization of both the Legacy and Interim Forces. These forces currently meet existing strategic requirements, and they play an important role in The Army's Objective Force development strategy. The digitized Legacy Force will generate lessons on harnessing the power of information that The Army can leverage in its development of the Objective Force concepts, organizations, Soldiers, and technologies. The Interim Force, The Army's first formations expressly designed for information-enabled operations, will similarly contribute to the development of the Objective Force, especially in the conduct of operations on the distributed, non-contiguous battlefield. Thus, these forces will not only mitigate the immediate strategic risk, but also will help maximize the effectiveness of the Objective Force.

Several ongoing demonstrations, experiments, and wargames constitute a vital link in the Transformation process. They demonstrate concepts and future training initiatives that will form the basis for the future force development. These efforts include such initiatives as the Institute for Defense Analysis (IDA) Intelligence, Surveillance, Reconnaissance (ISR) demonstrations at Fort Knox, and the Command, Control, Communications (C3) on-the-move demonstrations at The Army's Communications and Electronics Command (CECOM).

Analysis, Modeling and Simulation

Army analytical agencies are supporting Army Transformation, to include development of the Vision, Stryker (IAV), Stryker Brigade, FCS, and the Objective Force. Analytical processes will examine organizational and operational concepts, materiel requirements, materiel solutions, affordability, and investment priorities. Experimentation, analysis, and testing will form an important component of the development strategy for the Objective Force and FCS. These complementary efforts will observe issues at system, unit, and force levels across the spectrum of operations from peacekeeping to major regional conflict. Experimentation will explore operational concepts, organizational designs and the technological potential in order to provide the required capabilities for the Objective Force. Analyses will evaluate the cost-benefit of acceptable and feasible options in order to identify the preferred alternative that meets the needs for Objective Force design, development, and acquisition. The inherent characteristics of the Objective Force coupled with affordability provide the metrics for evaluating organizational and operational concepts. Testing will evaluate component, system, and system-of-systems capabilities to meet identified performance requirements. Throughout experimentation, analysis and testing, modeling and simulation provide critical support capabilities.

Army Models and Simulations

To achieve the Objective Force as rapidly as possible, the Army will capitalize on the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) Initiative. SMART exploits modeling and simulation (M&S) tools and technologies to address system development, operational readiness, and life cycle cost. The Initiative accomplishes its goals through the collaborative efforts of the requirements, training and operations, and acquisition communities.

SMART is a framework to provide a disciplined, collaborative environment to reduce costs and time required to provide solutions to Army needs. Key components are the ability to exchange data, algorithms, software, and other information. SMART yields four significant benefits that are of paramount importance to Army Transformation:

- Reduced total ownership costs and sustainment burden for fielded systems throughout their service life
- Reduced time to explore concepts and develop and field new or upgraded systems
- Increased military worth of fielded systems while simultaneously optimizing force structure, doctrine, tactics, techniques, and procedures
- Concurrent fielding of systems with their training devices

The benefit to the Army workforce is clear and unambiguous guidance to ensure maximum collaboration in using models and simulations; a better understanding of requirements and reduced time to structure contracts using digital data descriptions and virtual prototypes. This will shorten procurement lead times and reduce cost of system procurement. In total, all this leads to the acquisition of better weapons systems at a fraction of the time. It is important that The Army use M&S to understand both the current and the emerging operational environments. Modeling and simulation enables the “up front” effort that in turn leads to a better understanding of required capabilities. Emerging and future concepts will employ technologies, unit constructs, tactics, and procedures unlike those of today's Legacy and Interim Army forces. However, these concepts and system designs are not fully mature. Creating M&S tools to develop and analyze these concepts allows developers and engineers to refine concepts and designs in the virtual environment at a much faster pace with the benefit of more iteration. This saves time and money in the design cycle because it precludes the necessity of building prototypes, experimenting in the real world, and repeating the process in the temporal environment. Having all stakeholders involved in this process that uses M&S in a collaborative environment increases the efficiency and effectiveness of the analyses.

The foundation for long-term goals is a forward-looking strategy that will take Army advanced concepts and requirements into the future. In the out-years, these efforts will support development and research programs that will produce effective solutions to existing modeling shortfalls and voids. In turn, the next generation of M&S will allow the Army to address the Objective Force within the framework of Joint Vision 2020 issues. The goal of the M&S investments in the SMART Initiative, the advanced concepts and requirements, life cycle cost models, and enhanced training simulations is to reduce risk and identify, support, and transition M&S leap-ahead and high payoff opportunities. The Army will realize a return for immediate investments in these activities well before it fields the Objective Force.

C4ISR Interoperability

The Army support of DoD's third pillar of Transformation, leveraging US advantages in intelligence and information technology, includes the following efforts. To ensure reciprocity with the Joint Force's entire range of capabilities, The Army will embed full interoperability in its C4ISR technology. Achieving and sustaining information superiority requires interoperability within the transforming Army, and between Army forces and those of other Services and nations. The Army is following an enterprise strategy that supports digitization by implementing a sound, integrated, information technology architecture, and Horizontal Technology Integration. This strategy incorporates a "Space to Mud" C4ISR approach. The Army achieves C4ISR integration by incorporating compatible technologies, standardizing interfaces and components across the force using experiments and training. The Army will build on these processes throughout its Transformation to sustain and improve interoperability across all Army components, within the Joint team, and with multinational partners.

We are designing a web-based, knowledge-centric force, built around a Joint C4ISR architecture. We will integrate applications for the battlespace and home station. Future Objective Force systems, including the Future Combat System and Comanche, which will not only exploit but enable Joint C4ISR, receiving the common relevant operating picture and providing input to it. Comanche will provide the Joint Force Commander with the critical manned reconnaissance required to develop the situation and exploit unmanned sensor feeds.

Science and Technology

The Army's Science and Technology program is the "engine of change" that seeks to provide the solutions to accelerate the Army's Transformation into a strategically responsive force that is dominant across the full spectrum of military operations. The Army has radically altered its technology investment strategy to reflect its commitment to Transformation. We have also increased and focused science and technology funding in the last two POMs to achieve Objective Force capabilities in C4ISR, stand-off precision munitions, networked fires, multi-role cannon and kinetic energy missiles, and robotic systems (air and ground). The largest single investment and perhaps the most technically challenging science and technology program is the Future Combat System (FCS). The goal is to build and field the FCS by the end of this decade.

In the near term (2003-2006), the emphasis centers on maturing technologies to begin and complete the FCS System Development and Demonstration acquisition phase by the end of 2006. The FCS is the ground-based pacing system for achieving full-spectrum Objective Force capabilities. It will be a Joint and combined arms interoperable, 20 ton-class, rapidly deployable, networked system-of-systems with manned and unmanned aerial and ground platforms, direct and indirect fires, air defense, intelligence, reconnaissance, surveillance, and embedded battle command on the move. All of these capabilities will be provided while reducing the FCS unit's logistics demands. The collective effectiveness of FCS will exceed the sum total of its components.

Implementing the fourth DoD Transformation Pillar, the Army has adopted an innovative approach for developing and designing the FCS system of systems solution. In 2002, the Army with its Defense Advanced Research Projects Agency partner has selected a Lead System Integrator that will seek out and integrate the most promising, cost effective technologies for integration into the FCS. The mid-term efforts (2007-2012) focus on demonstrating technologies for increased capability through spiral development and block upgrades to FCS and other Objective Force systems. Emphasis is placed on lighter weight lethality and survivability, adaptive C3 on the move, advanced simulation, fully autonomous robotics, and further logistics demand reduction. In the far term (2020-2030), current Army investments in basic research will result in revolutionary new warfighting capabilities. Nanotechnolgy, biotechnology, advanced computing, directed energy, robotics and immersive technologies are six of the key research areas that will provide Transformational, perhaps disruptive, technologies within the first quarter of the 21st century.

The Army's International Cooperative Research and Development Program closely parallels the far term efforts. The Program provides opportunities to influence allies and friends to develop capabilities that are interoperable with US capabilities for enhanced future multinational and coalition operations.

Operational Transformation

Army Transformation is more than merely new platforms and capabilities. A cultural Transformation of our people must precede the Transformation of processes, organizations, and technology. Army Transformation will combine the best of its Heavy, Light, and Special Forces transcending the distinctive paradigms to create a common Warrior culture for the Objective Force. Like the current heavy force, Objective Force units will combine speed and overwhelming firepower into combined arms operations to dominate opponents. Like Soldiers of our current light force, they will bring mental agility and a rapid deployment mentality to the fight. Like our current Special Operations Soldiers, Objective Force Soldiers will be close combat specialists who are the best in the world at urban and night operations.

To that end, the CSA convened the Army Training and Leader Development Panel (ATLDP) to identify the skill sets required of Objective Force leaders. ATLDP will assess the effectiveness of current training and leader development systems necessary to cultivate those skills. Both the Officer and Non-commissioned Officer Panels have reported out. One of the primary recommendations was to improve training and education systems to incorporate the full spectrum of operations. This will require a more holistic approach that fosters the conceptual and interpersonal skills demanded by the future operational environment. A Warrant Officer panel began work in the spring of 2002.

Operating as part of a multinational, Joint and interagency team, Objective Force units will have the capability of conducting rapid, offensive, defensive, stability, and support operations in the context of Joint and combined operations. Objective Force formations will dominate a distributed, non-linear battlespace in all operating environments, against

a broad range of conventional and unconventional threats. Objective Force formations will contain versatile forces, interlinked through responsive, reliable networks to each other and to other Joint and multinational force components. They will leverage Joint and interagency reach capabilities for intelligence, personnel and force planning, administration, technical engineering, logistical support. These reach back capabilities will provide all aspects of information operations including the ability to protect the force against information attacks, physical destruction, propaganda campaigns, and computer network attacks. The Army's top priority is developing the concepts, organizations, materiel, and people for the Objective Force.

The Interim Force creates a Transformational capability by creating new organizations that combine several components. These components include agile, adaptive leaders, new concepts of operation, and existing technologies that will dramatically increase the combat power to mass ratio. The Stryker Brigade Combat Team's Reconnaissance, Surveillance, and Target Acquisition (RSTA) Squadron provides both organic human intelligence capabilities, and UAVs embedded at the brigade level. Its military intelligence and signal companies, working through a digitally enabled command and control "bridge," leverage theater and national assets to create an information-enabled force. Combined, these enhanced C4ISR capabilities allow the Stryker Brigade Combat Team to leverage Joint capabilities to control a vastly expanded battlespace. They provide the Joint and multinational force commander increased operational and tactical flexibility to execute fast-paced, distributed, non-contiguous operations. The Stryker Brigade Combat Team will use this enhanced C4ISR capability to change The Army's paradigm of combat from "make contact-develop the situation-maneuver the forces" to "understand the situation-move the forces-make contact." Moreover, by improving logistics practices, enablers, and formations, The Army has made the Stryker Brigade Combat Team vastly more deployable and sustainable. The Stryker Brigade Combat Team, when augmented for sustained operations, has 37% fewer combat service support personnel than a digitized heavy brigade. By substituting the power of information for mass, The Army created a basic capability to conduct operational maneuver at strategic distances. The Stryker Brigade Combat Team will train junior officers and noncommissioned officers (NCOs)—tomorrow's battalion commanders and command sergeants major—in a style of deploying, fighting, and sustaining that resembles the future Objective Force.

The Legacy Force sustains our warfighting readiness while we transform. To ensure continued battlefield overmatch, the Army must modernize, sustain, and recapitalize selected Legacy Force units. Further, the leaders and Soldiers of the Legacy Force will evolve the Tactics, Techniques, and Procedures (TTP) for Network Centric Warfare (NCW) using enhanced C4ISR systems on modernized Legacy platforms. The suite of systems that comprises the Army Battle Command System provides the integrated, Joint C4ISR "backbone" for the digitized Legacy Force. Modernized Corps and Division headquarters will serve as the basic structure for integrating advanced sensor-to-shooter links, and digitized command and control systems to provide the building blocks toward the Objective Force.

Army Special Operations Forces, as an integral part of the Objective Force, will provide inherent special operations capabilities to the Joint Force Commander and his or her Land Component Commander. They will continue to shape the security environment, dissuade and deter potential adversaries, and, when necessary, execute prompt, responsive, and decisive operations to achieve military and national objectives. As part of the Objective Force, Army SOF will continue to support the Joint Force Commander's campaign plan by providing unparalleled low-visibility operations in denied areas, countering insurgencies through foreign internal defense (FID), conducting unconventional warfare activities, and identifying, destroying, securing and seizing key objectives in the course of the Joint Campaign.

Making the Objective Force more responsive and deployable requires transforming our logistics as well as our maneuver forces. Logistics Transformation efforts are currently underway to ensure that Army forces are capable of rapidly deploying and effectively sustaining full spectrum operations. The Army is developing innovative sustainment concepts to achieve refined procedures. These sustainment concepts will accelerate throughput, battlefield distribution, and mission staging. This will result in a Distribution Based Logistics System, operating under a single Army-wide logistics provider, based on precision, speed, and throughput. Both the warfighter and the supporting logistician will have access to the system. By providing timely, accurate, and secure information on the complete inventory of supplies, and the ability to act on that information, Distribution Based Logistics will enable the Joint logistician to meet the continuing needs of combatant commanders.

As part of the Army Transformation Campaign Plan, the Army has established three principal goals for logistics Transformation:

- Enhance strategic responsiveness
- Reduce logistics footprint; and
- Reduce the costs of logistics support without reducing readiness or warfighting capability

The Army's Transformation efforts focus on three solution sets to achieve these goals. The first is materiel solutions, and includes both design parameters and technology insertions to produce more equipment reliability. Such equipment with embedded diagnostics/prognostics will use fuel efficiently, generate water, and make munitions more precise and lethal. These solutions address aggressively reducing replenishment demands that in turn will lead to a logistics footprint reduction.

The second solution set involves organizational solutions. The Army will redesign support organizations that are modular and tailorable to mission needs. To staff its support organizations, The Army will begin to train and educate agile, multi-capable logisticians and maintainers who are responsive to the changing needs of the maneuver force commander.

Business process solutions make up the third solution set. Technological advances, particularly Joint, integrated C4ISR, provide the means to transform the way the Army conducts business. By establishing a Common Relevant Operating Picture on the battlefield, logistics sustainment can become much more responsive by taking advantage of real-time situational awareness. These same technological advances in automation support the concept of reach operations whereby support personnel can manage the Distribution Based Logistics system more effectively over strategic distances. Improved business processes also contribute to improved cost efficiencies in logistics sustainment operations. Logistics Transformation is a continuing process of developing innovative sustainment concepts and taking advantage of technological advancements that will support 21st century operational concepts.

Institutional Transformation

Transformation not only applies to what we do, but also to how we do it. We are working with the business community to accelerate change across the entire Army. With these efforts, we strive to promote cooperation, share information, gain greater control over resource management, and adopt better business practices by eliminating functions or activities that no longer provide value. This initiative seeks to focus constrained resources on achieving excellence in areas that contribute directly to warfighting. Transformation of our business practices cannot wait, and we have started at the highest levels.

The Army is restructuring the Army Secretariat and Army Staff to create a more unified headquarters to conduct enhanced policy planning, and resource management activities. The goal is to transform the headquarters into a streamlined, integrated staff that is more responsive to the rapidly changing operational and institutional missions and to push more resources out to the field units. This will streamline the information flow and speed decision-making. The unified headquarters will seek greater integration of Reserve personnel into key staff positions to accommodate issues and concerns better. To minimize turbulence in the workforce, we will reinvest labor savings in other Army priorities. Realignment initiatives already underway will help us meet the congressionally mandated 15 percent reduction in headquarters staffs. With congressional support, The Army will apply these methodologies to the entire force.

The Army is also restructuring its major subordinate commands and functions to effect Transformation. By FY 03, The Army will have consolidated the management of the Army's communications and automation infrastructure under NETCOM. NETCOM's mission is to provide seamless management of common user services in support of US combatant commanders and Army service component commanders, and to perform network operations over the Army portion of the Global Information Grid (GIG). By FY 04, The Army's Transformation Installation Management initiative will have created a corporate structure focusing solely on effective and efficient installation management, ensuring that The Army develops and implements a coherent strategy for transforming our installations to support the Objective Force. This will free our warfighting commanders to focus on the readiness of their forces for prompt deployment and sustained operations. Finally, The Army will centralize the management of major

contracts under the Army Contracting Agency, which will become fully operational at the beginning of FY 03.

The Army's Training and Doctrine Command (TRADOC) is overhauling its structure and processes. Restructuring will ensure that the Army's institutional foundation continues to contribute to the readiness of the operational force, as well as support Transformation to the Objective Force. To support the skills, abilities, and characteristics that Soldiers and leaders of future must possess, TRADOC will develop vigorous, relevant training, and leader development programs, delivered by a streamlined, technology-enhanced organizational structure.

By August 1, 2002, the Army Material Command (AMC) will provide its Transformation plan to HQDA. AMC intends to Transform to provide the integrated, innovative technology and sustainment needed to create a more responsive, agile, strategically deployable and sustainable Army. AMC will enable Army Transformation by developing a culture that ensures highly skilled, technically competent, diverse, and innovative employees and employee support systems. It will strengthen, streamline, and effectively manage processes, enhance business and functional alignment, build relationships, and strengthen confidence in AMC among customers, partners, employees, and stakeholders. AMC will accomplish this by establishing improved internal and external communication structures and processes. The command will seek new methods to provide The Army and its Soldiers with advanced technology and sustainment that will maximize readiness and warfighter force effectiveness across the full spectrum of operations. These new methods include partnering with industry to create a complementary and synergistic mix of commercial and organic industrial capabilities that support a collaborative approach to system development.

The CSA also directed AMC, in conjunction with The Army G-4, to set up a task force to develop a comprehensive Transformation of logistics and sustainment within The Army. The Logistics Transformation Task Force will identify outdated, inefficient processes and plan for rebuilding a logistics architecture that will keep pace with the demands of Army Transformation. The plan will build upon successes in the Single Stock Fund and National Maintenance Program that reduce logistics costs without reducing warfighting capability. The Single Stock Fund consolidates management of wholesale, theater, Corps, installation, and Division authorized stockage lists into a single logistics and financial process. It eliminates fiscal ownership barriers and integrates automated systems. The National Maintenance Program creates more efficient and effective maintenance processes by repairing components supplied through the supply system to a single standard, and certifies repair sources to extend component lifecycles.

Aviation Transformation demonstrates another area in which The Army is willing to make hard choices about balancing risk to accomplish Transformation. The urgent need to address the steadily deteriorating condition of the aviation fleet and accelerate Reserve forces modernization, coupled with fiscal realities, led the Army to develop an aviation Transformation and restructuring plan. The interim plan now in progress not only lowers operating and sustainment costs but also postures aviation for transition to the Objective Force. To accomplish this, The Army will accelerate the divestiture of

approximately 1,000 legacy aircraft (all AH-1s already retired and UH-1s retired NLT FY2004), and restructure and standardize attack and lift formations across the force. We will also adjust the stationing and alignment of Reserve units to mitigate the near-term risk associated with reducing Active lift assets. This interim structure continues the maximum use of available training technologies that maintain crew proficiency. It invests in initiatives that improve aircraft reliability and maintainability through an aggressive recapitalization plan. Finally, the interim structure provides capabilities necessary to fight and win decisively until transition to an Objective Force structure becomes feasible.

Fielding the Comanche is a vital step toward mitigating the risk entailed in the above force structure reductions. The Army requires the capabilities of the RAH-66 Comanche to extend the Joint Force Land Component Commander's battlespace, inform the common relevant operating picture, and, when required, to provide Joint precision strike. The Army has aligned the Comanche program with Objective Force development timelines.

Tying it all Together—The Army Transformation Campaign Plan

The TCP is the mechanism for synchronizing and integrating Army Transformation efforts. It is a conditions-based strategy designed to achieve the goals of The Army Vision. It establishes key milestones and decision points, responsibilities and provides a process for periodic assessment and review. The plan's design allows maximum flexibility for innovation and initiative throughout the Army by focusing our collective efforts on achieving a common goal: the Army's Transformation objective. Army G3 will revise the TCP in the summer of 2002 to reflect the current situation. The revised TCP will include both the Defense Planning Guidance and Transformation Planning Guidance for Fiscal Years 2004-2009, and feedback from OSD and other agencies on the Army Transformation Roadmap. The revision will also address issues internal to The Army, such as The Army Staff reorganization.

Section III. DOD Transformation Goals and Army Transformation in Support of the Joint Fight

Army capabilities, employed by Combatant Commanders within a Joint operational/warfighting concept provide the strategically responsive, full spectrum maneuver forces and land power capabilities required for decisive operations across the full range of military operations. Army headquarters will provide fully interoperable command and control to the Joint Force, while Army Soldiers will provide the tools and expertise to enable the JFC to achieve decision superiority. In addition, Army units will continue to provide much of the ground-based infrastructure required to support Joint, internetted C4ISR, and to exploit space based capabilities. The following paragraphs highlight specific Army capabilities that enable DoD to achieve critical operational goals,

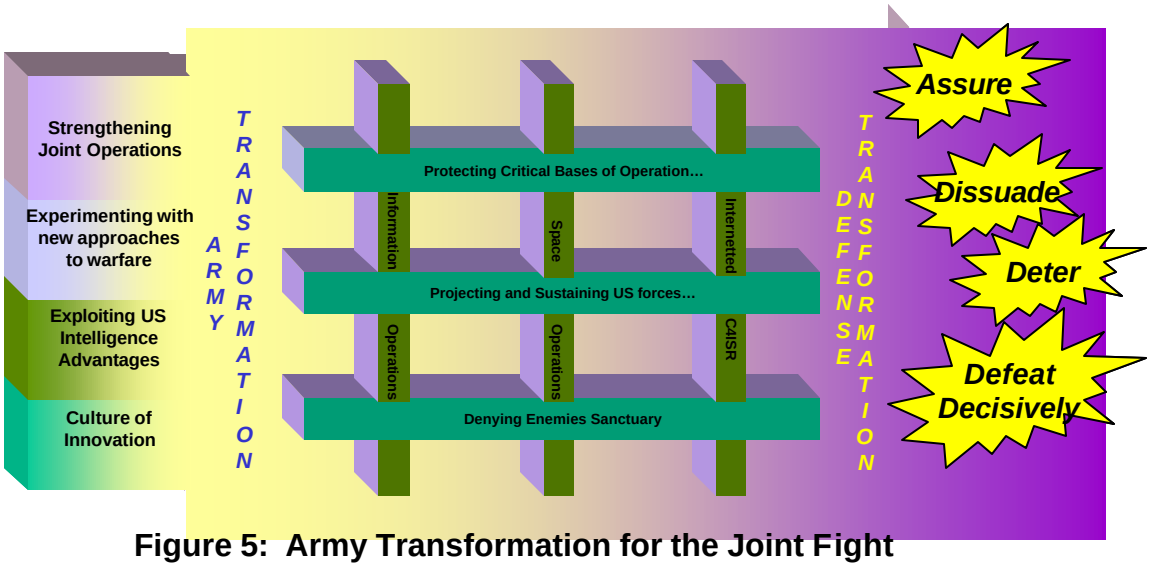

Figure 5: Army Transformation for the Joint Fight

with additional details and discussion for each goal included in supporting annexes. Timelines are approximate, with the near term defined as the present through 2004, the mid-term corresponds roughly with the fielding of the Interim Force through 2009, and the far term extends from 2010 and beyond.

A. Protecting Critical Bases of Operations (US Homeland, Forces Abroad, Allies, and Friends) and Defeating CBRNE Weapons and Means of Delivery (Annex A)

The Army protects our homeland, our allies and friends, and the Joint Force by providing land-based air and missile defense and CBRNE defense. By the fall of 2002, TRADOC, working closely with CINC NORTHCOM, will develop The Army's underlying concept for Homeland Defense and Force Protection. Transformational capabilities that specifically apply to homeland defense include The Army's Ground-Based Mid-Course Segment (GBMS) of missile defense, and Army Weapons of Mass Destruction Civil Support Teams (WMD-CSTs). We anticipate that the second third of this decade will

mark the first deployed, GBMS system component of the Ballistic Missile Defense System (BMDS) for homeland defense. Weapons of Mass Destruction Civil Support Teams (WMD-CSTs) provide immediate assistance to civil authorities in responding to CBRNE attacks and in leveraging Army capabilities to respond to them. Leveraging Joint, internetted C4ISR, Army formations will combine existing and new technologies to protect the Homeland and the Joint Force. Objective Force units will include deployable multi-layered missile defense capabilities employable in CONUS or as part of contingency operations. Future Combat System (FCS) equipped Units of Action will have a multiple sensor suite, a combination of lethal and non-lethal weapons, and an open C4ISR architecture that will support linkages to first responders and other components in support of the Homeland Security mission. Additionally, The Army will improve the scope of air and missile defense against several threats. These threats include Theater Ballistic Missiles (TBMs), advanced cruise missiles, and fixed and rotary wing aircraft from asset to area protection, and expand our capabilities to include rocket, artillery and mortar (RAM) projectiles.

B. Projecting and Sustaining US Forces in Distant Anti-Access or Area-Denial Environments and Defeating Anti-Access and Area-Denial Threats (Annex B)

While our enemies work to deny the Joint Force access to theaters of operation, The Army is working to assure it. The Army's foremost contribution to this goal is the ability to provide strategically responsive, dominant land forces. Assured access, the requisite multidimensional solution to the anti-access challenge, has diplomatic, economic, informational, and military components as well as Joint, interagency, and multinational aspects. As the major land power component of US Joint Forces, The Army provides unique capabilities to gain, enhance, and maintain assured access. We provide these capabilities through our core competencies, shaping the security environment, executing prompt response, and forcible entry.

Assuring access and countering anti-access threats begins at the political level before a hint of crisis appears. From a military perspective, our global posture of engagement will determine whether we address a nascent crisis from a position of relative strength or weakness. Forward-deployed forces, pre-positioned stocks, regional bases and facilities access, standing agreements with Allies and other nations, regional engagement by SOF and conventional forces, and multinational exercises are all instrumental in shaping a position of strength.

The essence of executing prompt response is providing strategically responsive forces that are mission-tailored and projected from home and abroad. The inherently capable Objective Force will conduct operational maneuver to achieve positional advantage from strategic distances as part of multidimensional Joint operations. The ability of the US to execute a prompt global response with decisive, full spectrum land forces will continue to require sufficient strategic mobility enablers and enhancements. These include force projection platforms, force projection technologies, and prepositioned stocks.

Ultimately, the US must have confidence in its ability to respond militarily and win decisively, even in degraded access environments. Forces must close with and destroy enemy forces; apply precision fires and maneuver; exercise information superiority; integrate Joint and multinational operations, and defend and control land, people, and resources at home and abroad. Army combat formations provide unique capabilities for forced entry operations. Our forcible entry capability will evolve from one of strategic strike and seizure operations currently embodied in our digitized Airborne Division and Ranger Units, to a more robust, full spectrum capability. The Objective Force will deploy rapidly from multiple ports of embarkation, at home or abroad, to multiple points within the theater of operations and fight upon arrival, bypassing chokepoints and anti-access threats as necessary. The Army's capability for sustained, decisive operations is evolving from a concept of linear, sequential operations using the alert-train-deploy-buildup-counterattack paradigm embodied in our Legacy Corps and Division structures. The new paradigm is a capabilities based, fully networked force designed and able to conduct simultaneous, distributed operations using a train-alert-deploy-fight paradigm. Logistics capabilities that are evolving from inventory-based processes and systems to a more streamlined and responsive distribution-based system will sustain the fully networked force. Additionally, Army forces provide unique missile warning and missile defense capabilities critical to countering specific anti-access threats and enhancing assured access through systems such as the Patriot/PAC3, THAAD, JLENS, and MEADS. Army formations also conduct sustainment operations in support of Army and other Joint Force elements.

C. Denying Enemies Sanctuary By Providing Persistent Surveillance, Tracking and Rapid Engagement with High-Volume Precision Strike, Through a Combination of Complementary Air and Ground Capabilities, Against Critical Mobile and Fixed Targets at Various Ranges and in all Weather and Terrain (Annex C)

Army Objective Force units will dominate land operations, providing the decisive complement to air, sea and space operations and the campaign quality force required to resolve conflicts. They will create synergy within the JTF by controlling ground where people and political authorities reside; and, by defeating our opponents in their protected sanctuaries; or, by forcing them into the open where joint fires will destroy them. The psychological effects produced by the power and precision of Objective Force units will serve to deter hostile acts both prior to deployment and during the stability phases of operations. The presence of dispersed, Objective Force units operationally integrated through an Information Network, will provide the Joint Force Commander situational dominance in applying lethal and non-lethal effects with unprecedented precision across the spectrum of military operations.

Because precision engagement is not a stand-alone function of any Service, there is, by design, a desirable overlap in capability among and within the Services. This overlap ensures complementary and total ISR, maneuver, and fires capabilities across the entire battlespace for the full range of operations in complex environments. The Army's unique contribution includes providing capabilities that can complement Joint ISR and

maneuver capabilities. In addition, tailored formations trained in identifying enemy sanctuaries, conducting persistent surveillance and target tracking, and coordinating the delivery of timely air-ground maneuver task forces supported by high-volume area and precision fires will support the JFC. Through programs like Land Warrior, the Army is making every soldier a sensor, shooter, and assessor for the full range of Joint Fires. Using highly survivable, all weather, all-terrain capable precision delivery systems and munitions, ARFOR Commander or JFLCC will provide the JFC with a pervasive, land based, responsive, and persistent day and night precision engagement capability in all environments.

D. Assuring Information Systems in the Face of Attack and Conducting Effective Information Operations (Annex D)

The Army's Transformation efforts significantly enhance unique Army capabilities that will enable the Joint Force to assure information systems in the face of attack, and to conduct effective Information Operations (IO). The explosion in information technology vastly increases the data available to the commander. It also increases the requirement to refine and make sense of that data while denying this capability to our enemies. Army IO Transformation will accomplish this goal through development of adaptive Soldiers and leaders, both of which are the key to its success. The Army will support them with a Transformed IO force structure and Transformational IO technologies. We will accomplish IO Transformation to support the Joint Force effectively along three broad axes: providing full spectrum IO planning and execution; enabling decision superiority; and, creating and preserving opportunities for decisive Joint Force operations.

Objective Force units will have full spectrum IO planning, directing and execution functions fully integrated as a core competency in the staff. IO capability embedded in dedicated force structure will support the Joint Force. In terms of decision superiority, the Objective Force will offer worldwide, real-time predictive understanding and decision superiority. In this situation, the Joint Force not only will have complete, real-time visibility of the relevant portions of the information environment but also will possess a robust analytical capability to identify patterns of attack and defense. The Army is moving to support the Joint Force by embedding within the Objective Force autonomous, self-synchronizing automated capabilities. These will frustrate adversary attacks on our information systems and affect his decision support tools. The Army's most significant contribution, however, will be the cadre of adaptive leaders and Soldiers who will rapidly assimilate and master the rapidly evolving patterns of Information Operations.

E. Enhancing the Capability and Survivability of Space Systems and Supporting Infrastructure (Annex E)

The Army is, and will remain, the largest user among the services of space-based capabilities. As The Army transforms, it will refine and enhance its ability to exploit the capabilities of space systems. The Interim and Legacy forces already leverage overhead constellations of military and civilian space platforms for intelligence,

communications, early warning, and positioning, navigation and timing (PNT). The Objective Force will leverage the full potential of these systems. Mid- and far-term development of overhead architectures, systems, and platforms is critical. The operational simultaneity, situational understanding, precise and tactically responsive ISR, and assured communications implicit in the Objective Force Operational Concept will fully utilize those platforms. The Objective Force, like the rest of the Joint Force, will depend heavily on the Joint Force's ability to provide space control, and our ability to exploit space resources while denying them to the enemy.

F. Leveraging Information Technology and Innovative Concepts to Develop an Interoperable, Joint C4ISR Architecture and Capability that Includes a Tailorable Joint Operational Picture (Annex F)

Objective Force Units will "See First" by detecting, identifying, and tracking the individual components of enemy units. The Objective Force will employ advanced technologies coupled with a ubiquitous array of networked ground, air, and space sensors. Together, these offer the commander an unprecedented picture of the battlefield. Sensors, reconnaissance formations, and data fusion systems, like the Joint Global Information Grid (GIG), coupled with innovative leader training will enable decision makers to view a synthesized, Common Relevant Operating Picture of the battlefield. This CROP will provide near real time status and locations of friendly forces. This will enable the commander to develop and evaluate effective offensive and defensive courses of action while minimizing fratricide. The CROP will also enable the commander to know enemy locations and strengths, ascertain his intentions, and defeat him decisively.

The CROP produced by Seeing First will allow leaders of the Joint Force to understand what the enemy is doing, better anticipate his intentions, and proactively respond to his initiatives. Leaders at all levels will observe the CROP and simultaneously analyze and share assessments through a collaborative planning process enabled by information technologies. Objective Force commanders will leverage the leaders' intellects, experiences, and tactical intuitions to identify enemy centers of gravity and conceptualize solutions. This will create a collective genius through accelerated collaborative planning. The ensuing reduced decision cycle will enable Objective Force units to seize the initiative, build momentum, and maintain offensive pressure thereby achieving decisive outcomes.

The Army has already made important steps towards this goal. The Army Battle Command System (ABCS), and the C4ISR infrastructure for the Interim and digitized Legacy forces, provides a COP to ground maneuver units. The artillery, and air and missile defense components of ABCS are interoperable with both Joint and Multinational systems. ABCS can also leverage theater assets, like JSTARS. During Division Capstone Exercises I and II, the Army's 4th Infantry Division demonstrated a significant increase in combat power when it exercised these capabilities. We will incorporate the lessons we learn from operating ABCS in developing the C4ISR infrastructure for the Objective Force. The Global Command and Control System, Army (GCCS-A) will form an integral component of the Deployable Joint Command and

Control System (DJC2), a networked system of information systems to facilitate Joint command and control.

The Army is already translating concepts into capabilities. We are developing a knowledge-based, battle command system that combines mentally agile, intuitive, self-aware, adaptive leaders at all levels with an execution-centric command and control system. Additionally, we are developing leaders educated for rapid synthesis of information, intuitive assessments of situations, and rapid conceptualization of friendly courses of action. These leaders will command units highly trained and disciplined in the use of information technologies.

Section IV. Building Combat Power over Time—Army Transformation Timelines

Army Transformation is a continuous process driven by the capabilities required to meet the demands of the 21st century. We will never stop seeking to set the terms of military competition and dominate them. Nonetheless, there are definite waypoints as we increase our contributions to the Joint Force that coincide with the attainment of capabilities in the Interim and Objective Forces. We are Transforming our ability to conduct decisive land combat, including our forced entry, vertical envelopment, and Special Operations capabilities.

By the middle of the decade, The Army will begin fielding the Stryker Brigade Combat Teams, develop the Objective Force, and selectively modernize much of our Legacy Force. Our first subordinate objective is the first Stryker Brigade's attainment of its IOC. The Army anticipates achieving this objective in May 2003, providing the Joint Force with a significantly more lethal rapid response maneuver capability. By 2005, we will have fielded four Stryker Brigades, three of which will have achieved their IOC. Further, one of those will have achieved its FOC. These Stryker Brigades, with their improved strategic responsiveness and ability to operate in a dispersed, non-contiguous battlespace, will dramatically expand the landpower options available to combatant commanders. Further, The Army will have revamped its combat support and combat service support processes and the necessary infrastructure to facilitate the rapid deployment of these units. During this period, The Army will complete the design of the Objective Force, both Units of Action that will fight the future's battles and the Units of Employment that shape the battlespace. The lessons learned from the Stryker Brigades about information enabled operations and fighting in a non-contiguous battlespace will inform the organizational design of the Objective Force, as will Joint and Army experimentation. The Legacy Force also has a role to play, as we learn how to create and adapt a CROP. The contractor for the FCS will build and test prototypes during the System Design and Demonstration (SDD) phase of the FCS Program. With regard to the digitized heavy force, III Corps will have completed its conversion to an information-enabled force. Similarly, The Army will significantly augment the combat power of its forced entry capability, the Ranger Regiment and the 82nd Airborne Division, through digitization. Furthermore, we will have reconfigured two Corps headquarters to provide network centric command and control to these formations and other components of the Joint Force. Those components include Army theater missile

defense protection for critical assets. During this time period, The Army will also begin fielding the Land Warrior system, providing all our Soldiers the same capabilities as Army Rangers for operating as part of an information-enabled force in close and urban terrain. Soldiers in the Stryker Brigades and the information-enabled heavy force will learn the lessons of Network Centric Warfare. The Army is modernizing its training facilities, especially the Combat Training Centers, to facilitate full-spectrum, information-enabled training of the entire force. In terms of individual training, Army schools will begin training the multi-skilled soldiers necessary to implement our support and sustainment concepts. Army schools will produce a steady flow of "digital soldiers" in 2004, and increase the training of leaders and soldiers in the disciplines, such as information operations and space operations, to conduct modern war. The Army is also using its education system to improve its culture of innovation. At the senior level, general officers that have completed The Army Strategic Leadership Course will set the tone and establish the climate. Colonels who have studied at the Army War College will take specific measures within their organizations to foster agility and innovation. Captains and lieutenants, the future brigade and battalion commanders for the Objective Force, will emerge from a school environment in which they learned how to apply these skills into an environment that fosters them. In turn, these leaders will generate ideas and concepts that enable the Objective Force.

By 2010, The Army will begin fielding the Objective Force, while completing both the fielding of the Stryker Brigades and the recapitalization and modernization of the Legacy Force. This next step aligns with the attainment of initial operational capability (IOC) by the first Objective Force Unit of Action. The Army's first Unit of Action, equipped with both FCS and the Objective Force Warrior system, will provide combatant commanders with the responsiveness of Stryker Brigades with all the lethality and survivability of information enabled heavy forces. The Army's science and technology focus will shift to block upgrades to the FCS. The first Unit of Employment will begin organizing as well. The Unit of Employment will provide Objective Force Units of Action, as well as any assigned Stryker Brigades and Legacy Forces, with the ability to leverage a fully developed, joint, interoperable COP, integrated into the GIG. Units of Employment will shape the battlespace in which Units of Action fight, including the provision of aviation, engineer and air and missile defense support to its Units of Action. Army air and missile defense assets will provide the Joint Force with 360-degree, area protection against all airborne threats, with the exception of RAM. The Unit of Employment will be able to provide command and control for Stryker Brigades and information enabled heavy forces, as well as components of the Joint Force. The Army's science and technology focus will shift to the maturation of technologies for insertion into the FCS. As for the Stryker Brigades, the Army will have fielded all six by year-end 2008, stationing one in Europe by the end of FY 2007. By this time, all Army Corps Headquarters will attain JTF/JFLCC/ARFOR capability and the Legacy Force will have largely completed its modernization. Meanwhile, even as Army air and missile defense units provide in theater area air and missile defense protection against airborne threats, up to and including TBMs, the Army-led GBMS system will protect the United States from attack. Combat Training Center modernization will reach completion, offering full spectrum training to the Objective Force. The sergeants, captains and majors who grew up in the Stryker Brigades will become the senior NCOs, battalion and brigade commanders in

the first Units of Action. The colonels who first fostered a climate of innovation in their brigades will have become the Army's senior leaders. All leaders will be fully at home in the less-hierarchical, faster paced operations of the information age.

By 2016, The Army will have fielded fifteen Units of Action. Combined with the Stryker Brigades and the information-enabled heavy force, both forward-stationed and CONUS-based, these Units of Action will have the ability to deploy the equivalent of five warfighting Divisions from multiple points of debarkation into multiple points of entry in a theater of operations in thirty days. To contribute to this capability, The Army will have begun reconfiguring its pre-positioned stocks. Units of Action will fully integrate combat support elements, such as engineers and non-line of sight (NLOS) fires. The Army will have also fielded the necessary Units of Employment to provide command and control for these Units of Action, and to shape the battlespace in which they will operate. These Units of Employment will have improved their air defense capabilities to protect themselves and their subordinate elements against all airborne threats, to include RAM. Army units will sustain the Joint Force but with only 50% of the footprint in the combat zone that they currently possess. The Army will seek to improve its capability for vertical envelopment by pursing advanced lift alternatives that will vastly increase the ability of the Objective Force to conduct distributed operations in a non-contiguous battlespace. Leaders who grew up in the culture of innovation and agility will now lead The Army, fully able to foster and exploit the creativity of their subordinates. At lower levels, leaders and Soldiers who grew up in the Objective Force culture will fill the most of The Army's ranks. Concurrent with the Leadership Development Program, The Army will begin to undertake the actions necessary to keep Transformation on track.

The Objective Force is not an end-state but rather a construct to focus the Army's continuing efforts to become more strategically responsive and full spectrum. Our revised TCP will better recognize the need for continuing effort to achieve and then improve these characteristics. It will include opportunities for the inclusion of "Transformational" capabilities as we develop a more strategically responsive, full spectrum force.

Section V. Managing Army Transformation—A Continuous Process

A. Managing Change and Balancing Risk

The 21st century will require that forces adapt to meet its challenges, while maintaining capabilities to meet near term readiness requirements. To carry Transformation forward, The Army must manage change and balance risk. To manage change successfully, The Army developed a comprehensive conditions-based strategy and implementation plan. This plan carefully manages our Transformation efforts, emplacing change agents to monitor and synchronize key Transformation activities and events. With campaign planning and the requisite tools and venues to ensure that we covered all required Transformation elements, The Army established a "battle rhythm" to ensure that we gained and maintained the necessary momentum to achieve the Objective Force. Only through the application of such an adaptive and flexible plan that incorporates change over time will Army Transformation efforts make the Objective Force a reality. Managing Army Transformation requires, however, managing the four kinds of risk stated in the Defense Planning Guidance: force management risk; operational risk; future risk, and, institutional risk.

To balance these risks, we have continued The Army's investment paradigm shift from resourcing legacy capabilities to resourcing the Objective Force. As a result of terminations and restructurings of major programs, The Army investment profile underwent a major reorientation over the past three POMs in order to support Transformation. The Army is procuring very few systems for which the Legacy Force is the sole user, about 50% of the modernization funding. Instead, the Army is procuring systems that the Legacy Force can use but that will transition with us to the Objective Force. There are very few Legacy-only systems remaining whose reduction would not seriously impair the readiness of the current force. Together, managing change and balancing risk considerations have resulted in the following strategies.

Maintaining the Transformation Momentum: Change Agents

Army and Defense Transformation require continuous assessments and, at times, difficult decisions. To ensure that the initiatives detailed in this report are faithfully and expeditiously carried out, and to maintain the momentum, The Army established change agents, campaign planning with requisite toolkits, and a Transformation battle rhythm. In addition to these measures, The Army has turned to its external board of directors – the Secretary of Defense, and the Congress – for support in implementing Army Transformation. Selections for senior Army leadership and direction of key organizations are critical to the management of change. Leaders at all levels have a critical role in The Army's attainment of the Objective Force and must work to overcome the inertia that impedes progress. Since the announcement of The Army Vision and Transformation in 1999, The Army has established the following change agents, led by the Secretary and Chief of Staff of the Army:

- The Army Transformation Office for monitoring and managing the Army Transformation effort

- The Objective Force Task Force to integrate the Army's main effort for an Objective Force capability this decade

- General officer Transformation leads to help organize functional activity on a long-term basis (Lines of Operations)

- The Lead System Integrator for the Objective Force system of systems.

- The Joint Venture Directorate for Army/Joint concept development and experimentation

- The Brigade Coordination Cell at Fort Lewis to assist in the formation of the Stryker Brigade Combat Teams

Campaign Planning with Requisite Toolkits

The Army's path calls for rigorous prosecution of change beyond the traditional planning periods. It is reinventing The Army at its best. The Army's approach for comprehensive Transformation is campaign planning: that is, integration of ways, means, and ends. The primary Army Transformation planning reference is the Army TCP discussed previously. Other examples include the Army Strategic Campaign Plan, the Objective Force Campaign Plan, and the Army Experimentation Campaign Plan.

Putting it all together: Transformation Tool Kits and Battle Rhythm

Mastering information – the transforming Army requires agility in the learning loop. We must make the rate of learning sustainable as a competitive advantage. A transformed force is no longer a construct of the Defense Planning Guidance and The Army Plan. It is the price of admission to the 21st Century environment. For Army Transformation, The Army utilizes a suite of analytic, managerial, and computer tools to synchronize the events and decisions from all the campaign plans to achieve objectives. This suite of tools is an important baseline for concept development with The Army Transformation Wargames, and the day-to-day management of change with the Transformation Execution Matrix. The Execution Matrix and its monthly updates contain essential events, meeting forums, and critical decisions for the near term. Managing change includes the following Battle Rhythm:

- Four-Star Events. These are special forums chaired by the CSA that provide information on specific topics or present decisions for resolution to the senior leadership. The intent is to use the TCP synchronization matrix to assist in selecting topics and establishing the timing for presentation or decision.

  (a) Four-Star Requirement Review Councils (Monthly) CSA

  (b) Four-Star OF-TF Reviews (Monthly)

(c) CSA Video Teleconferences (VTCs) (Monthly)

- Transformation Synchronization Meetings (Monthly). The VCSA normally hosts the meetings that synchronize Transformation efforts 180 days out. The General Officer/Senior Civilian Line of Operation leads, including representatives from FORSCOM and TRADOC, attend these meetings
- Objective Force Task Force Three-Star Force Integration Staff Officer's Council
- TCP Battle Staff Meetings held weekly at the COL/0-6 level. The meetings' intent is to include all of the Lines of Operations, and serve as discussion forums.

B. Resource Requirements through the Future Years Defense Program (FYDP)

The Future Years Defense Program (FYDP) of the 2003 President's Budget (PB 03) continues The Army's investment paradigm shift from resourcing legacy capabilities to resourcing the Objective Force. Almost 5.3% of Army TOA is dedicated specifically to the Interim and Objective Force components of Transformation. Further, about 50% of the Legacy Force modernization program actually purchases systems that will transition to the Objective Force. Such systems include the Tactical Unmanned Aerial Vehicle (TUAV) and the Line of Sight Anti-Tank Weapon (LOSAT).

PB 03 Transformation Summary ($M)			
	Total Requirement	Funding	% Funded
Objective Force	$21,661	$20,745	96%
Interim Force	$4977	$4627	93%
Legacy Force	$126,441	$75,686	60%

The Objective Force

Objective Force

($M)	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 03-07
PB 02	2,404	2,290	2,604	3,113	3,833	5,175	17,015
PB 03		2,664	3,108	3,851	4,868	6,249	20,745
Difference		374	504	738	1,035	1,074	3,730

The Army is funding almost $7.9B of Science and Technology, with nearly 98% of it specifically targeted for the Objective Force. This is a $167M increase in S&T funding from PB 02 FYDP levels. This adequately funds all of The Army's critical S&T requirements to field the first Objective Force units by the end of the decade. In addition to its own S&T funding, The Army has entered into a joint venture with DARPA (in which DARPA provides an additional $431M of S&T funding from FY 00-05) to develop key FCS technologies. The first major milestone on the path to fielding Objective Force capabilities is the FCS Milestone B decision, led by the lead system integrator and targeted for 2003. The Army Leadership will review the status of

technologies currently under development for the FCS and determine their maturity to enter SDD.

The Army has made a large down payment towards the FCS SDD phase by funding an additional $3.2B of its known requirements. During this POM (PB 03), The Army has accelerated its acquisition strategy for the FCS. Production will start in FY 06 in order to equip the first unit of action in FY 08, and achieve IOC in FY 10. Because of this acceleration, and because of the operational requirement to achieve IOC by FY 10, The Army expects its FCS requirements to increase. The Army will seek assistance from OSD to ensure its Transformation momentum continues to accelerate.

Comanche is The Army's armed reconnaissance helicopter and light attack weapon system of the future. It is a lethal, survivable, agile, versatile, affordable, responsive, deployable, and sustainable aircraft. As the centerpiece of the Aviation Modernization Plan (AMP), Comanche will achieve IOC before the end of this decade. The Army has fully funded Comanche in accordance with CAIG estimates PB 03 based upon a production rate of 62 aircraft per year. Additionally, the Army has added funding in FY07 in order to begin ramping to a planned production rate of 96 aircraft per year in FY10.

The Warfighter Information Network – Tactical (WIN-T) is the key information enabler for the Army's Objective Force. WIN-T is The Army's Objective Force "New Start" tactical digital communications system that will provide advanced commercial-based networking capabilities to the warfighter. The Army has fully funded WIN-T requirements to replace current Army Mobile Subscriber Equipment (MSE) and Tri-Services Tactical Communications (TRI-TAC) that use 1970's technology.

Furthermore, S&T efforts will continue to feed block improvement to the initial Objective Force capabilities that the Army will field this decade. The Army will continue to leverage industry and universities in order to maximize its return on S&T investment dollars.

The Interim Force

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	881	914	811	841	852	4,299
PB 03 FYDP	978	1,082	896	829	883	4,668
Difference	97	167	85	12	31	369

The Interim Force will complement legacy forces to provide the tactical overmatch required to meet the full range of future operational requirements. Already, two combat brigades are in the process of converting to Stryker Brigade Combat Teams (SBCTs) with the fielding of the Interim Armored Vehicle (Stryker.) The Army has allocated over $6.4B through FY 07 to field six Stryker Brigade Combat Teams. PB 03 fully funds the Interim Armored Vehicles, and provides an additional $912M in funding for the support equipment associated with the six SBCTs. An additional $106M funds ammunition for the SBCTs and provides $400M for SBCT Military Construction (MILCON). The Army will field these units in complete brigade sets, to include the MILCON associated with the fielding of this equipment.

The Legacy Force

Maintaining current warfighting readiness requires The Army to invest in today's force – The Legacy Force. We will accomplish this by recapitalizing key systems and by selectively modernizing to maintain combat superiority or overmatch on the battlefield until the Objective Force is realized fully. In order to realize the fielding of the Objective Force, The Army has continued to take a significant a mount of risk in its Legacy Force recapitalization and modernization programs. The Army balanced risk by focusing modernization efforts on selected units and capabilities. Only the Counterattack Corps, some XVIII Airborne Corps units, and the Interim Force will receive the system upgrades and digitization capabilities that comprise Legacy Force modernization. In order to protect critical Objective Force development and Interim Force capabilities during FY 03-05, it was necessary to terminate or restructure legacy systems. Over the past two POMs (PBs), The Army has terminated or restructured

Modernization: The development and/or procurement of new systems with improved warfighting capabilities

Recapitalization: The rebuild and selected upgrade of currently fielded systems to ensure operational readiness and a zero time/zero mile system

- *Rebuild* - Restores system to a like-new condition; inserts new technology to improve reliability and maintainability
- *Selected Upgrade* - Rebuild of system and adds warfighting capability improvements to address capability shortcomings

Maintain: Repair or replacement of end items, parts, assemblies, and subassemblies that wear or break

Figure 6: Definitions

eighteen different programs that resulted in $9B in savings that we subsequently reinvested in Army Transformation. PB 03 continues this trend. Although The Army has added over $4.1B for Legacy type equipment over the POM (in FY 06 and 07), we continued to scrutinize our investments in the Legacy Force. We sustained funding for high priority systems that will transition to the Objective Force and increased funding for associated support equipment that the Interim Force will use. Finally, we reduced funding allocations for systems that are not essential to the Transformation. The result of this review was that The Army terminated nineteen additional programs and reduced twelve others for a total reallocation of $5.8B. The funding ramp and OSD guidance requirements resulted in a funding decrease of more than $450M for Legacy systems during FY 03-05. In spite of this decrease in the near-term, we remain fully cognizant of the fact that this current Legacy Force that must guarantee the nation's near-term, warfighting readiness.

In order to make the most prudent use of its resources, The Army focused the modernization of its Legacy Force by identifying and prioritizing those systems that have applicability to the Objective Force. These systems fall into two categories. The first are those that are part of the Legacy Force and will transition with us to the Objective Force, such as the Family of Medium Tactical Vehicles (FMTV) and the Javelin anti-tank missile. The second category includes those that we are building specifically for the Objective Force, but will transition to the Legacy Force, like Tactical Unmanned Aerial Vehicles (TUAVs) and Highly Mobile Artillery System (HIMARS). By doing this, the Army ensures that it efficiently spends its resources on systems that will benefit it now and in the future.

The PAC-3 is another example of a "Legacy Force" system that is nonetheless a key component of the Objective Force. OSD (PA&E) considers the PAC-3 Transformational. This system provides "hit-to-kill" protection to the Joint Force against TBMs, cruise missiles, and fixed and rotary wing aircraft. We are fielding it today. Program Budget Decision (PBD) 816 transferred full responsibility for Lower Tier defense from the Missile Defense Agency (MDA) to The Army. In accordance with the Defense Planning Guidance (DPG), The Army will sustain funding for the seven PAC-3 battalions and 1,130 PAC-3 missiles transferred from MDA. However, The Army requires ten PAC-3 battalions and 2,200 PAC-3 missiles along with an additional $595M for PATRIOT recapitalization. MDA reduced its support from ten to seven PAC-3 battalions prior to PBD 816 in anticipation of the FY07 fielding date for Medium Extended Air Defense System (MEADS). However, MDA did not restore its support for ten PAC-3 battalions after the delay of MEADS to FY 12.

($M)	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 03-07
PB 02		14,341	14,485	13,939	15,395	17,080	75,239
PB 03	13,876	14,384	14,556	14,287	14,127	13,688	71,042
Difference		42	71	349	1,268	3,392	4,197

Conclusion

The environment of the 21st Century demands a Transformed Joint Force. The strategic environment of the 21st Century dictates that the United States military develop a suite of capabilities that allow it to set the terms of military competition and to dominate that competition. The power of information technology offers us the opportunity to expand the asymmetric advantage of American Joint Forces by creating a greater synergy between its components. By themselves, technological advantages are precarious and at the mercy of sudden breakthroughs in unexpected quarters. Nevertheless, these technological advantages provide a firm foundation for US military preeminence when adaptive, agile leaders and Soldiers combine them with new ways of fighting, and versatile organizations.

The campaign in Afghanistan has shown that ultimate defeat of the enemy requires landpower as part of the Joint Force. Providing this dominant landpower requires a force that is responsive, deployable, agile, versatile, lethal, survivable and sustainable. It requires the Objective Force.

Transformation, however, cannot happen all at once. We must develop and test new concepts, organizations, processes, and technology in the laboratory, in Joint and Army warfighting experiments, and in a real-world operational context. The Army is aggressively pursuing the twin axes of technology development and experimentation to produce a responsive, dominant Objective Force. Further, we intend to create a culture of innovation, producing leaders who will promote the innovation required for the future.

Army Transformation is not just about The Army. It is about providing capabilities to the Joint Force and to the Nation. A Transformed Army protects our homeland by providing a convincing deterrent to potential foes, and reduces the vulnerability of bases of operation by reducing its footprint and reliance upon those bases. It provides the land-based capability for defeating CBRNE weapons and their means of delivery. It provides the force structure, the technology, and the doctrine to protect the information infrastructure that is the lynchpin for our new warfighting concepts and to disrupt that of our enemies. By making itself more deployable and less dependent on fixed, developed infrastructure, a Transformed Army negates anti-access and area denial strategies thereby denying to our enemies a defense of inaccessibility. Soldiers provide the most precise, responsive means to strike and control enemy centers of gravity. Transformed Army headquarters provide versatile, fully interoperable command and control for Joint and multinational operations, including the management and exploitation of space assets.

The Global War on Terrorism, Homeland security, and the need to maintain readiness for a new kind of Army all drive the need for Transformation. The Army is accelerating Transformation to achieve these capabilities. The Army Transformation Roadmap is a living document, intended to reflect the dynamic nature of Army Transformation. As innovative ideas emerge from within and outside of The Army, as breakthroughs in science and technology occur, as concepts prove their worth through experimentation,

The Army will exploit them. In turn, the Army Transformation Roadmap will reflect the enhancements this strategy will uncover over the succeeding years.

The Army prepares for the challenges of the 21st century. Within the dictates of the NSS and NMS, and guided by the laws and traditions of the Republic, The Army will continue to shape the environment of future conflict. Grounded in Joint doctrine, The Army will fight and win the Nation's Wars. In peace, war, and diplomacy, The Army stands ready to serve the Nation as it has for the last 227 years.

Annexes

Annex A: Protecting Critical Bases of Operations (US Homeland, forces abroad, Allies and Friends) and Defeating CBRNE Weapons and their Means of Delivery

1. Introduction

The Army's efforts to protect critical bases of operations (US homeland, allies, and friends), and defeat CBRNE weapons and their means of delivery proceed along two mutually supporting axes: protecting the US homeland, our most important responsibility; and protecting the Joint Force. The latter subsumes the defense of allies and friends from whose territory the Joint Force might operate. This section will address the protection of the Joint Force first, since the capabilities developed to this end will also defend the US homeland.

The capabilities described in this section depend on factors contributing to the other five critical operational goals, all of which contribute to the attainment of those capabilities. The most vital of these capabilities is the attainment of a fully integrated, tailorable, Joint common relevant operating picture (CROP) through internetted C4ISR. This will provide the Joint Force with the ability to leverage the intelligence, surveillance, and reconnaissance of space platforms, and national and Joint assets. Information gained from these assets allows the JFC to identify threats and spread warning to the rest of the force, and the Nation. In turn, this network depends upon the Joint Force's ability to conduct Information Operations. The capabilities that protect the Joint Force allow it to defeat or mitigate the effects of weapons of mass destruction. By doing so, we frustrate enemy efforts to deny access to the Joint Force, and protect critical precision strike assets.

2. Protecting the Joint Force

In the near term, The Army will provide the Joint Force with its land-based protection against Theater Ballistic Missiles (TBMs), advanced cruise missiles, and fixed and rotary wing aircraft. This leverages the Joint air and missile defense CROP. Improved CBRNE defense capability provided by the Army's dedicated CBRNE defense units and NBC medical capability will deter an enemy's use of CBRNE weapons in the battlespace. Enemy use of such weapons within the combat zone will actually increase the relative combat power of US forces, as the enemy does not possess comparable protective and defense capabilities. The Army is contributing to Joint Force Protection through its participation in Joint efforts to create an integrated Joint COP that will provide commanders advanced warning of terrorist threats and intentions. The Army is augmenting installation commanders' ability to respond to terrorist and CBRNE attacks through dedicated force structure and training.

The Army is providing the Joint Force with full dimensional air defense protection for critical assets and maneuver forces with the PATRIOT Advanced Capability (PAC), Configuration 3 system. The PAC-3 significantly improves firepower and increases the

footprint of the defended area against TBMs, advanced cruise missiles, and fixed and rotary wing aircraft. When combined with integrated air defense command and control systems, the PAC-3 improves the Interoperability of Army air and missile defense assets with the entire joint force, and allows the remote operation of launchers for up to 30 kilometers.

Improved CBRNE defense capabilities will deter enemy use of such weapons in the battlespace. The Army will augment the Joint Force's "detect to warn" capability for nuclear, radiological and chemical threats, and its "detect to treat" capability for biological threats. The Army's NBC defense strategy is to employ "focused defense" against NBC threats. Using this strategy requires that only those units affected by the hazard will need warnings to take protective measures. Using focused defense, large numbers of units will no longer need to assume a full protective posture as a precautionary measure. Focused defense allows units to operate in the lowest required protective posture without increasing the risk to Soldiers beyond the acceptable units. NBC reconnaissance and surveillance units, with their point and standoff detectors, are the principal means of contamination avoidance. Decontamination units restore combat power after units are contaminated. Biological detection companies provide shortened response time for Divisions and Corps to initiate their medical response to the growing threat of biological warfare agents.

As the Army transforms, we will field new equipment that will enable units to employ a focused defense against WMD threats. The Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD), a chemical standoff detection system will detect chemical agents up to 5 km in range from a variety of ground and air platforms. The Army fully supports the Chemical Biological Defense Program's efforts to field an interim Biological Standoff Detection System. When fielded in FY05, this will provide the first biological "detect to warn" capability. This improvement in our capabilities, combined with point detection systems already fielded, will significantly increase our force protection posture. Additionally, The Army will augment its capability to treat casualties in a CBRNE environment. The Army has already begun fielding the Chemical Biological Protective Shelter (CBPS) to provide a highly mobile, environmentally controlled contamination free work area. Forward Surgical Teams and forward deployed medical treatment facilities can now provide emergency medical treatment in a CBRNE environment. The Collectively Protected Deployable Medical System (CPDEPMEDS) will provide an environmentally controlled collective protection to the Hospital Unit Base (HUB) of Combat Support Hospitals. The system allows medical personnel to sustain operations in a CBRNE environment. Although incremental, these changes provide an ability to operate in a CBRNE environment that is vastly superior to that possessed by any potential adversary. This will deter adversaries from initiating CBRNE attacks, as they would further degrade their combat capability relative to the Joint Force.

To protect our installations, The Army is developing a Common Operating Picture that provides predictive intelligence about terrorist activity, as well as dedicated installation force structure and specialized training to respond to CBRNE attack. People are The Army's first line of defense against terrorism. Key officials receive special staff training culminating in constructive and virtual exercises for installation commanders to allow

them to foil terrorist attacks; or, if necessary, to mitigate their consequences. The Army also participates in J34 (Anti-terrorism) efforts to develop TALON, an integrated Joint reporting and analysis architecture that will contribute to installation protection. Another ongoing development effort is the In-transit Security Portal, a complementary effort to provide force protection for assets in transit. The Army also intends to exploit new cooperation in the Global War on Terrorism by continuing to foster interaction with Russian ground forces and their leaders. We will accomplish this through peace support operations, conferences, visits, and exchanges as the Army's contribution to building the new strategic framework with Russia. Finally, The Army is the DoD lead agent for the implementation of biometric physical security measures that the events of September 11 pressed into service. Modifications to Army force structure significantly augment the ability of installation commanders to deal with CBRNE attacks. CBRN Installation Support Teams (ISTs) will provide each installation with "first responder" capabilities that include chemical, biological, and radiological detection, warning and reporting, limited decontamination, triage, and emergency procedures. CBRN-Rapid Response Teams (RRTs), in conjunction with regional Medical Command (MEDCOM) Special Medical Augmentation Response Teams (SMART-NBC), will provide regional commanders with the ability to augment installation commanders with specialized medical treatment capabilities, providing an additional capacity that will allow installation teams to continue operations for 48 hours.

In the mid-term, The Army will leverage automation and the inherent synergy of Joint, internetted C4ISR to substantially augment these existing capabilities. Army Air and Missile Defense units will provide the Joint Force area, vice asset, protection against over the horizon threats from Short and Medium Range Ballistic Missiles (SRBMs and MRBMs). Together with PAC3 and later, MEADS, The Army's Theater High Altitude Area Defense system (THAAD) provides near leak proof defense of ballistic missiles, advanced cruise missiles, and fixed and rotary wing aircraft. The Army is also cooperating with Israel in developing the Mobile Tactical High Energy Laser to provide point defense against RAM that will reach maturity during this period. The Army will harvest this technology for later integration into the Extended Area Air Defense System (EAADS) that will reach maturity in the far term. The Army will significantly improve the contamination avoidance capability for the Joint Force with a standoff detection capability for biological weapons. Beginning in FY04, we will field an interim Joint Biological Standoff Detection System (JBSDS) that will provide Joint commanders with an early warning biological detection capability. Standoff technology will enable NBC defense units to identify biological warfare agents up to 30 km away using standoff technologies. The fielding of the Joint Warning and Reporting Network (JWARN) in FY06 will provide Joint Forces with a common data base architecture for NBC warning, reporting, and battlefield management.

In the long term, The Army will provide robust 360-degree detection and defense against multiple and simultaneous attack by a variety of threats. These include the full spectrum of TBMs, cruise missiles, unmanned aerial vehicles, Tactical Air-to-Surface Missiles, as well as fixed and rotary wing assets. The Joint Land Attack Cruise Missile Elevated Netted Sensors Systems (JLENS) will provide over-the-horizon, land attack cruise missile defense, enhanced cruise missile detection and extended engagement

ranges. JLENS will support the Air Directed Surface-to-Air Missile (ADSAM) engagement concept for current air defense weapons such as Patriot, Standard Missile, and the Advanced Medium Range Air-to-Air Missile. The Extended Area Air Defense System (EAADS) will provide the Joint Force with the capability to defeat RAM, the greatest threats to the maneuver and ground forces. The proposed, self-contained system will provide the ability to destroy enemy targets with Directed Energy (DE) and Kinetic Energy (KE) weapons. It will exploit the capabilities of the FCS and will form an integral part of Army Units of Employment and Units of Action.

The Army is also pursuing an aggressive modeling and simulation program to redesign its installations to support Objective Force projection more effectively. The redesigned installations will provide Objective Force commanders with a better defense against terrorism and other threats. One such initiative is the Corps of Engineers "Fort Future" project. Initial input from these programs will influence planning for Objective Force installations as early as FY 06, and refined to support installations for the period FY 10 and beyond.

3. Protecting the Homeland

Under the rubric of Military Support to Civil Authorities, (MSCA) for which The Army is the Executive Agent, The Army will be able to employ all of the aforementioned capabilities to defend the Homeland, as well. In addition, The Army is developing selected capabilities for Homeland Defense. These capabilities include air and missile defense, anti-terrorism and intelligence measures.

For the near term, The Army will also provide significant capabilities to coordinate, synchronize and respond to CBRNE attacks. These capabilities include both specialized capabilities and general-purpose forces to meet mission requirements. Under Title 32 Authority and State control, The Army National Guard can participate as part of the local first responders. Additional Army forces can participate when directed as part of a Federal Response, if required. National Guard Weapons of Mass Destruction (WMD) Civil Support Teams (CSTs) are a specialized capability that provides rapid, on scene identification of chemical, biological or radiological agents. Teams use a suite of equipment to provide a presumptive analysis of the type of contamination present at a terrorist attack site. This on-site rapid analysis aids efforts to identify the area of contamination allows the CSTs to advise and assist civil authorities (Incident Commander), and make timely and accurate decisions to protect public health and safety. Additionally, initiatives currently underway that will improve the command and control capability of State Area Command (STARC) Emergency Operations Centers (EOCs) will allow them to coordinate and synchronize military support with that of other local, state, and federal agencies.

In the mid-term, The Army will augment these capabilities with additional WMD-CSTs thus providing all 50 states and 4 territories with the ability to coordinate, synchronize, and respond to CBRNE attacks. Additionally, The Army will provide "hit to kill" protection against incoming Intercontinental Ballistic Missiles (ICBMs). The GBMS program will detect, track, and destroy ICBMs before they enter our atmosphere.

Finally, Army intelligence collection and analysis capabilities will decrease the cycle time between interception of enemy traffic and issuance of a warning to a threatened community or other target. The Army is currently co-sponsoring an Advanced Concepts and Technology Demonstration (ACTD) to assist in the automated translation of foreign languages that can greatly reduce the cycle time between threat transmissions interception and reaction. The Language and Speech Exploitation Resources (LASER) ACTD aims to reduce the foreign language barrier, accelerate the accessing and useable processing of foreign language sources, and integrate language processing into Intelligence Community (IC) and coalition operations. LASER will also support Strategic-to-Tactical analysts and operators, and develop and sustain strategic language skills.

4. Programs

The following major Army programs support this critical operational goal. The discussions below include funding for these programs over the FYDP.

a. Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS). JLENS provides a counter-attack cruise missile capability for the Joint Tactical Air and Missile Defense (JTAMD) Family of Systems (FOS). The JLENS program builds, tests, fields, and manages a low-cost elevated netted sensor system that improves battlefield information superiority and air space dominance for the US and allied warfighters. JLENS consists of surveillance and fire control radars.

($M)	FY 03	FY 04	FY 05	FY 06	FY 07	FY 03-07
PB 02 FYDP	30.4	34.3	34.3	35.2	35.2	169.3
PB 03 FYDP	29.1	56.5	57.4	68.1	67.9	279.0
Difference	31.9	12.5	11.6	1.9	2.1	60.0

b. Patriot PAC-3. Provides air defense of ground forces and critical assets against Air Breathing Threats (ABT), Tactical Ballistic Missiles (TBM), and Cruise Missiles (CM). PAC-3 increases a unit's battlespace against Tactical Ballistic Missiles by eightfold.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	0.0	0.0
PB 03 FYDP	864.7	941.3	720.3	638.6	622.3	3,787.2
Difference	864.7	941.3	720.3	638.6	622.3	3,787.2

c. Medium Extended Air Defense System (MEADS). Development of an air and missile defense system that is tactically mobile and transportable. Netted and distributed architecture with connectivity to external sensors/systems to enhance performance and provide 360-degree coverage. Hit to kill technology using PAC-3 missile.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	0.0	0.0
PB 03 FYDP	117.7	280.6	272.1	277.1	281.9	1,229.4
Difference	117.7	280.6	272.1	277.1	281.9	1,229.4

d. Mobile High Energy Tactical Laser (MTHEL). High-energy laser weapon system that uses proven laser beam generation technologies, proven beam- pointing technologies, and existing sensors and communication networks to provide a new active defense capability in counter air missions.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	0.0	0.0
PB 03 FYDP	3.5	39.8	39.7	24.8	9.9	117.7
Difference	3.5	39.8	39.7	24.8	9.9	117.7

e. Air & Missile Defense Command and Control System (AMDCSS). AMDCCS provides both C2 and a sensor to shooter link for AMD operations and consists of two components, Forward Area Air Defense Command & Control (FAAD C2) and Air & Missile Defense Planning & Control System (AMDPCS). AMDCCS is the backbone that enables AMD forces to integrate and synchronize with other Army systems, Joint, and NATO AMD forces for both air situational awareness and engagement operations. AMDCCS also provides the maneuver commander with an effective means to conduct A2C2.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	38.3	53.0	48.2	41.0	31.7	212.2
PB 03 FYDP	62.1	75.6	70.6	73.8	134.7	416.8
Difference	23.8	22.6	22.4	32.8	103.0	204.6

Annex B: Projecting and Sustaining US Forces in Distant Anti-Access or Area-Denial Environments and Defeating Anti-Access and Area-Denial Threats

1. Introduction

Projecting and sustaining forces in the face of anti-access challenges is a significant component of The Army's Transformation. Adversaries who desire to limit US influence and thwart its ability to project and employ military forces in time of crisis, typically utilize area denial strategies and capabilities over time. While time is the critical strategic dimension, physical and social environmental factors, distance, and geography also significantly influence the access equation. Assured access--the requisite multidimensional solution to the anti-access challenge-–has diplomatic, economic, informational, and military components as well as Joint, interagency and multinational aspects. Our goal is to operate from a posture of assured access, and to maintain that access, even if degraded, throughout any crisis. As the major land power component of US Joint Forces, The Army strives to shape the security environment. In order to execute prompt response and conduct forcible entry and decisive operations, we must continue to develop these unique capabilities to gain, enhance, and maintain assured access.

2. Shape the Security Environment

a. Description. Assuring access and countering anti-access threats begins at the political level before a hint of crisis appears. From a military perspective, our global posture of engagement will determine whether we address a developing crisis from a position of relative strength or weakness. A number of factors are essential to shaping a position of strength. These include:

- Forward-deployed forces
- Pre-positioned stocks
- Access to regional bases and facilities
- Standing agreements with Allies and other nations
- Regional engagement by Army conventional and special operations forces
- Multinational exercises.

Army capabilities that support this shaping effort include proactive and enduring actions with allies and friends that assure them of our common security issues, objectives, and commitment. Shaping efforts also include strategies that dissuade others from developing threatening capabilities, deter aggression, and improve our posture for military intervention and decisive operations as necessary.

b. Army Capabilities. Army forces and Soldiers demonstrate US security commitments and conduct cooperative activities. They use a variety of different strategies to accomplish this including forward deployed operational forces, bases, and prepositioned stocks. Other methods we employ are political-military activities such as multi-national exercises, Joint and Combined Exercises and Training (JCET), conferences, military-to-military contacts, interoperability forums, and Army-Army staff talks. Complementary strategies include security assistance programs, Foreign Military Sales (FMS), and International Military Education and Training (IMET). Finally, participation in foreign technology programs, and direct support to other nations in the form of humanitarian assistance, support during special situations, and the US Army Corps of Engineers international support activities all impinge on shaping efforts.

(1) Army forward deployed forces, bases and prepositioned stocks provide the first line of capabilities that demonstrate US resolve and commitment in critical areas around the world. We enhance assured access by our presence and professional involvement with allied and coalition armies on a daily basis. The Army's network of prepositioned stocks, strategically located around the world, directly supports this shaping strategy. The network builds mutual confidence in the ability of US forces to respond rapidly in the event of crisis. The value of Army forward presence, while difficult to quantify, is an essential element within our National arsenal for building confidence among friends and allies. It is an encompassing element assuring access based on common security objectives and concerns. Augmented by the integration of Joint Force packages in the event of crisis, we enhance deterrence through a robust immediate response capability thereby reducing risk.

(2) Army air and missile defense systems continue to be a key element in solidifying US, allied, and coalition partnerships in times of crisis. The capabilities of these systems proved their value during Operation Desert Storm, and they continue to do so today. Patriot continues in its role as the preferred TAMD system for allied and coalition partners' protection of their citizens and territory; and, for forward deployed US forces and bases. In the near- to far-term PAC 3, THAAD, and MEADS will dramatically enhance and improve our TAMD capabilities. Initiatives with the MOBILE TACTICAL HIGH ENERGY LASER (MTHEL) and JLENS offer potential for new and revolutionary methods of detecting and defeating theater air and missile threats.

(3) The Army contributes directly to shaping the international security environment and underwrites regional stability through an extensive array of security cooperation programs and activities. As well, we conduct support and stability operations in support of theater combatant commanders and national goals. These efforts, including The Army International Affairs and Security Assistance Programs, assure allies and friends by building upon areas of common interest, while deterring and dissuading others. We accomplish this by enhancing the Army's ability to operate effectively with coalition partners within a Joint, multinational framework. These activities contribute directly to a posture of assured access in strategic regions and countries around the world. The payoff for this relatively small investment of resources is considerable, as evidenced by

theater combatant commanders' preferential employment of Army Soldiers in executing security cooperation programs and activities.

3. Execute Prompt Response

a. Description. The US ability to respond promptly with full spectrum, decisive military forces worldwide is essential to assuring friends and allies, deterring and dissuading adversaries, and rapidly resolving crises. The essence of executing prompt response is providing strategically responsive forces that are mission-tailored, and projected from home and abroad. These forces conduct decisive operations immediately upon arrival to deter conflict and, if deterrence fails, they compel and decisively defeat adversaries, at the time and place required by the Joint Force Commander.

b. Army Capabilities. Army forward-deployed forces and prepositioned stocks reduce risk and provide robust, immediate response capabilities to Joint Force Commanders today, and they will continue to do so in the future. The design of Army combat formations for rapid projection provides a unique capability for rapidly reinforcing and augmenting forward-based forces and for executing prompt, sustained operations in areas where no or insufficient forward-based forces are present. The Objective Force will have the capability to conduct operational maneuver from strategic distances as part of multidimensional Joint operations, bypassing chokepoints as necessary. They will deploy from multiple points of origin to multiple points of entry, thereby negating specific anti-access strategies and threats. The ability of the US to execute prompt response with decisive, full spectrum capabilities will continue to require sufficient strategic mobility enablers and enhancements. These include force projection platforms, force projection technologies, and prepositioned stocks.

(1) Army forward deployed forces, bases and infrastructure provide robust and lethal immediate response capabilities in key regions and countries around the world. In the near-term, Stryker Brigade Combat Teams (SBCTs) equipped with Stryker Armored Vehicle will provide JFCs land power for increased operational and tactical flexibility to execute early entry for fast-paced, distributed, noncontiguous joint operations. That capability is more strategically responsive, mobile, lethal, agile, and versatile than today's combat formations. The Objective Force will provide the dominant, full spectrum, combined arms force described by the Army Vision. These full spectrum combined arms formations will provide Joint Force Commanders with the ability to have a combat capable brigade on the ground 96 hours after liftoff, a warfighting division in 120 hours, and five divisions in thirty days. Integral to Objective Force formations are surveillance, reconnaissance, and strike platforms like Comanche, and networked overhead communications and sensor systems. Systems include Tactical Unmanned Aerial Vehicles (TUAVs), Prophet, Aerial Common Sensor, and Pathfinder. To realize their full potential, Objective Force formations will rely on communications and ISR capabilities provided by air and land-based capabilities. As well, Global Hawk and Space Based Radar (SBR) will provide high altitude/space platforms.

(2) Effectively executing prompt response for both Army and Joint Forces, particularly in anti-access and area-denial environments, will require assured access to space based

systems. These space-based systems provide essential communications, PNT, and ISR capabilities required for responsive, decisive operations. Assured access to these essential space based capabilities and denial of like access to adversaries is required, particularly in the early phases of an operation or crisis where terrestrial-based C4ISR infrastructure may be limited.

(3) The strategic mobility triad consists of sealift, airlift, and pre-positioned stocks. An optimal mix of these assets is critical to projecting and sustaining US forces in distant anti-access and aerial denial environments. Current sealift assets, such as the 8 Fast Sealift Ships (FSS), 11 Large Medium Speed ROROs (LMSR), and 31 ROROs in the surge fleet, are capable of deploying current Army forces into or near the theater of operations faster than ever before. Similarly, the 125 C-5 Galaxy and programmed 120 C-17 Globe Master III airlift fleets, along with enroute logistical support, are essential elements of the strategic air bridge when projecting power from CONUS. Once in the area, we can use intermediate staging bases (ISB) that are C-5 and LMSR capable, to transload military forces. Using intra-theater lift assets such as the Theater Support Vessel (TSV), port opening packages, Theater Support Airlifter (TSA), C-130 and future Air Maneuver Transporter (AMT) aircraft, allows us to deploy those forces directly into contested areas. Using these assets allows us to bypass chokepoints or area denial targets at major sea- and air- ports of debarkation (S/APODs).

(a) There are also unique emerging technologies that will enhance assured access capabilities. Initiatives such as Shallow Draft High Speed Sealift (SDHSS), large ground effect aircraft (Pelican), and Ultra-Large Airlift (ULA) provide immense capability to improve strategic responsiveness. Additionally, the TSV, TSA and AMT significantly enhance operational employment of forces within a theater or Joint Operational Area, bypassing or defeating AA/AD threats. These same capabilities support sustainment of Army and Joint Forces. In austere or degraded access environments, employing systems such as Precision Extended Glide Airdrop System (PEGASYS) will allow the conduct of logistical support from high altitude and standoff ranges. As we improve our ability to project our forces into distant environments more quickly, we must also review the Civilian Reserve Air Fleet (CRAF) and the Voluntary Intermodal Shipping Agreement (VISA) programs. We must develop a “CRAF/VISA-next” capability to coordinate with the enhanced operational capabilities of the Objective Force.

(b) The third leg of the strategic mobility triad is pre-positioned stocks. Currently, we have strategically positioned eight heavy brigade equipment sets, a Division base, Corps and theater opening packages, and sustainment and operational stocks around the world. As we transform Army forces, we will selectively transform our prepositioned stocks. This will ensure equipment compatibility between the pre-positioned sets of equipment and the units designated to activate them, and sustainment and operational stocks to meet Legacy, Interim and Objective Force needs. Rapid response, Army Pre-positioned Stocks (APS) afloat will continue to provide a critical force multiplier for the Objective Force as well. The Army’s analysis recommends an increased proportion of sustainment stocks and equipment relative to combat equipment. Sea-based supply support activities, with on-board logistics and C2 elements, will provide ship to shore distribution capability.

4. Conduct Forcible Entry/Decisive Operations

a. Description. Ultimately, the US must have confidence in its military's ability to respond rapidly and win decisively even in degraded access environments. This level of assurance demands a capability to apply full spectrum combat power at the point of decision. Forces must gain entry into contested areas worldwide, fight upon arrival, defeat anti-access and area denial threats, and prepare for arrival of follow-on forces. It requires full spectrum forces for the full range of 21st Century military operations. Operations across the spectrum include the ability to conduct operational maneuver from strategic distances and mobile strike operations; close with and destroy enemy forces; apply integrated precision fires and maneuver; exercise information superiority; and, defend and control land, people, and resources.

b. Army Capabilities. The Army designs, organizes, and equips combined arms formations to provide the full spectrum land power capabilities required for 21st Century military operations. Army formations provide unique forced entry capabilities, including airborne assault, tactical vertical envelopment; the Objective Force will expand on these capabilities. Early entry operations form an important role in consolidating and expanding the success of forced entry operations. In the near term, The Army's Stryker Brigade Combat Team, in conjunction with combat support enablers like the Joint Rapid Airfield Construction (JRAC) initiative, will provide an important ability to expand control of key areas and receive follow-on forces, an ability upon which the Objective Force will expand. Army Special Operations Forces, in conjunction with the full-spectrum formations of the Objective Force, will conduct strategic/operational and mobile strike operations. Finally, Army forces provide critical missile warning and missile defense capabilities to the Joint Force, as well as conducting sustainment operations for Army and other Joint Force elements.

(1) Currently, The Army is enhancing its forced entry capabilities with the digitization of the 82nd Airborne Division and the modernization of the 101st Air Assault Division. These enhancements dramatically improve the battlespace awareness, command and control, and operational capabilities of these formations as part of an integrated Joint team. Army Ranger units provide a unique capability to conduct Special Operations against strategic or operational targets in pursuit of national or theatre objectives. Rangers provide the Nation with a specialized force that can execute forced-entry operations, airfield seizures, and the capture or destruction of critical, high value, strategic targets. The future Objective Force's capability to conduct operational maneuver from strategic distances, and decisive operations immediately upon arrival will provide JFCs with a revolutionary capability for forced-entry operations. The Objective Force inherent capabilities to conduct simultaneous operations at multiple entry points, fight upon arrival, and selectively bypass chokepoints or specific areas, provide JFCs with unique capabilities. Along with other capabilities, these in particular include the ability to defeat specific anti-access and area-denial threats, and to prosecute decisive operations even in degraded access environments.

(2) Conducting sustained land combat will remain one of The Army's core competencies. The requisite land power capabilities, and the ability to employ them, will reside in The Army Legacy, Interim, and Objective Forces. Decisive operations require full spectrum maneuver forces capable of controlling and defending land, people, and resources. The Objective Force, with its inherent versatility, agility, and adaptable leaders, designed with networked C4ISR and composed of FCS-equipped units, will have this quality of enduring dominance, even in the face of anti-access and area-denial threats. The Army's Objective Force ability to deploy a combat capable brigade in 96 hours, a warfighting Division in theater in 120 hours, and five Divisions in 30 days will ensure the strategically responsive land power capabilities required by tomorrow's JFCs. The Objective Force will provide Joint Force Commanders with the requisite full spectrum capabilities. It will employ greatly enhanced capabilities for situational understanding, rapid mobility, Line-of-site (LOS) and Non-line-of-site (NLOS) precision fires, and precision vertical and ground maneuver over operational and tactical distances. By employing advanced capability systems such as FCS, Comanche, MEADS and advanced munitions, and fully integrating into Joint architectures and forces, The Objective Force will attain land dominance over any adversary, including those who attempt to deny access, prolong conflict, and avoid decision.

(3) In conjunction with the decisive capability to employ land combat formations, The Army has the responsibility for, and provides significant capabilities, to sustain these forces. As well, we also have the responsibility to provide other Joint Force elements with responsive logistical support. Reducing logistical demand and hence its footprint is essential to achieving Army strategic, responsive objectives, and enhancing operational and tactical mobility. DoD's recent assignment of Executive Agent responsibility for logistics to The Army will assist in eliminating redundant CSS capabilities across all services and agencies. This has the potential to provide the impetus for joint logistics interoperability. To execute its responsibilities, The Army will fuse logistics information and transportation technologies to provide focused logistics to the warfighter. Focused logistics will use several methods to provide rapid sustainment response directly to the warfighter. Such methods include configured loads that maximize throughput with minimal reconfiguration; a logistics COP shared at all levels from unit to the industrial base for anticipatory precision distribution of sustainment; Joint and commercial integration, and automated inventory tracking systems. Army initiatives in this effort include transforming from an inventory-based system to one that is distribution-based. Focusing on material solutions to achieve greater system reliability and reduce logistics demand, organizational changes to improve efficiency, support of ACTDs such as Joint Distance Support and Response will advance Logistics Transformation efforts. Additionally, the adoption and incorporation of proven business practices and automated systems will support our Logistics Transformation.

However, sustainment is still a requirement. Sustaining forces in distant theaters requires not only the unique Army forces required to move sustainment stocks (units for port opening, theater support, etc.), but also sufficient inter-and intra-theater mobility platforms to move and distribute logistics supplies. Sustainment material must flow proportionately with combat/operational forces to assure Joint Force capability to conduct sustained decisive operations. Joint dependence on mobility platforms such as

LMSRs, C-17s and C-5s for this sustainment flow will not decrease dramatically in the near future. **This fact argues for Transformation of capability to include accelerated exploration of new lift capabilities such as SDHSS and TSV sealift, and SSTOL and VTOL aircraft.**

(4) Early entry Joint Forces will require the air and missile defense capabilities provided by Army systems such as Patriot/PAC 3, THAAD, and MEADS. Ongoing technology initiatives focused on high-energy lasers and the GBMS segment of an integrated missile defense capability offer the potential for enhanced plug and fight missile defense capabilities for the JFC. The Army's Stryker Brigade Combat Teams (SBCTs) will provide JFCs with a robust, lethal, early entry, land force capability to expand control of key areas and receive follow-on forces. For example, an SBCT employing Joint Airfield Construction (JRAC) Program capabilities provides a unique capability to upgrade the existing airfields rapidly, or to construct contingency airfields in austere or degraded environments.

5. Programs

The following major Army programs support this critical operational goal. The discussion below includes funding for these programs over the FYDP.

a. Comanche. The Comanche Program will field a fleet of aircraft for the primary missions of light attack and armed reconnaissance. Comanche provides anti-armor, air-to-air, and area suppressive fire in night and adverse weather conditions. This man-in-the-loop Army aviation provides advantages throughout the JOA for engaging fleeting targets, focusing terminal effects, assessing results, and controlling effects after munitions are in flight.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	719.3	972.4	1,406.7	1,497.4	2,475.7	7,071.5
PB 03 FYDP	880.9	995.9	1,418.6	1,491.4	2,577.6	7,364.4
Difference	161.6	23.5	11.9	6.0	101.9	292.9

b. FCS System Development & Demonstration (SDD). Funds SDD (formerly EMD) for the FCS Program starting in FY06. Funds acceleration of MS B and establishment of a Lead System Integrator (LSI) starting in FY 03.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	50.0	753.0	1,080.0	1,833.0
PB 03 FYDP	60.0	399.9	771.4	1786.3	2,033.3	5,050.9
Difference	60.0	399.0	721.4	1.033.3	953.0	3.167.9

c. Stryker Armored Vehicle. The Interim Armored Vehicle (IAV)Stryker is the primary combat and combat support platform for the Stryker Brigade Combat Teams of the Interim Force. The IAV leverages existing technologies to equip the Interim Force.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	880.7	914.5	810.8	841.5	852.4	4,299.9
PB 03 FYDP	951.0	1,038.9	847.8	780.4	831.9	4,450.0
Difference	70.3	124.4	37.0	61.1	20.5	150.1

d. Hypervelocity Missiles. Compact kinetic energy missiles will provide overwhelming lethality for the FCS. Leverages miniaturized guidance and control actuation technology, high fidelity visual digital simulation, advanced composite motor and structure technology, fire control, insensitive nondetonable propulsion technology.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	85.0	116.9	117.3	60.3	54.9	434.4
PB 03 FYDP	88.2	125.0	116.7	70.0	54.7	454.6
Difference	3.2	8.1	0.6	9.7	0.2	20.2

e. Countermine Programs. Assured and rapid surveillance, reconnaissance, detection, and neutralization of mines. Provides the maneuver commander the ability to shape and maintain dominance of the battlespace that is critical to maneuver warfare

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	107.2	54.2	51.1	51.5	37.1	301.1
PB 03 FYDP	78.3	56.8	42.0	50.3	47.4	274.8
Difference	28.9	2.6	9.1	1.2	10.3	26.3

f. Army Experiments and Demonstrations. Advanced model development of sensors, digitization, and other critical technologies enables rapid breakthroughs for fielding new technologies. Includes Army experiments at Battle Labs and participation in Joint Experimentation Campaign Plan.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	192.3	251.0	258.9	300.6	301.5	1,304.3
PB 03 FYDP	219.6	261.7	267.1	337.4	340.9	1,426.7
Difference	27.3	10.7	8.2	36.8	39.4	122.4

g. Science and Technology. Focused investment is the source of "leap ahead" transformational technologies that will provide significant, and even revolutionary, improvements to current capabilities. Areas include Nanotechnology, advanced sensors, robotics, electromagnetic guns, battery power, high-power microwaves, and high-energy lasers

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	498.7	519.5	536.1	532.9	558.0	2,645.2
PB 03 FYDP	511.5	521.7	544.6	553.7	576.0	2,707.5
Difference	12.9	2.1	8.5	20.8	18.0	62.3

h. Science and Technology in support of FCS. Based upon on an innovative, collaborative partnership that leverages DARPA and industry investments. Highly focused research focused on four main areas: Operations, C4ISR, Sustainment, and Training. The strategy is to identify relevant technologies today, assess technology readiness in 2003, and mature those technologies for insertion in 2006 and beyond.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	594.0	626.0	607.0	475.0	463.0	2,765.0
PB 03 FYDP	647.0	645.0	620.0	466.0	451.0	2,829.0
Difference	53.0	19.0	13.0	9.0	12.0	64.0

i. UH-60. The UH-60 Program includes the recapitalization program and procurement of new UH-60 aircraft, an aircraft used to perform air assault, general support, C2, and MEDEVAC missions. The recap program is designed to upgrade the current UH-60 Black Hawk fleet, ensure operational effectiveness, extend service life, reduce operating and support costs, and improve reliability, maintainability, safety, and efficiency.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	323.6	382.1	414.3	625.0	595.9	2340.9
PB 03 FYDP	321.1	379.4	390.5	814.0	814.6	2719.7
Difference	2.4	2.7	23.8	189.1	218.7	378.8

j. CH-47D / CH-47F RECAP. The CH-47 is the Army's only heavy lift helicopter capable of inter-theater cargo movement of payloads greater than 9,000 pounds. The Recapitalization programs are designed to upgrade the current CH-47 fleet, ensure operational effectiveness, extend service life, reduce operating and support costs, and improve reliability, maintainability, safety, and efficiency.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	391.8	549.9	572.7	544.8	433.8	2493.0
PB 03 FYDP	410.1	545.3	566.6	625.5	513.0	2660.5
Difference	18.3	4.6	6.2	80.8	79.2	167.5

k. Abrams M1A2 SEP Upgrade & M1A2SEP Retrofit. Funding provides a system upgrade (M1 to M1A2SEP), retrofit (M1A2 to M1A2SEP) to the Abrams M1A2SEP configuration, and fielded to the CATK Corps (966). M1A2SEP Upgrades and M1A2SEP Retrofit include Thermal Management System, Integrated GPS with POS/NAV, 2nd GEN FLIR with Commander's Independent Thermal Viewer (CITV), Embedded Computer with FBCB2, Improved Diagnostics, Improved Frontal Armor. M1A1AIM Funding provides a system rebuild of the Abrams M1A1 Tank via the Abrams Integrated Management (AIM) process and fielded to the Containment Force (790). The M1A1AIM includes a zero time/zero hour rebuild, improved survivability, and embedded architecture for future M1A1D retrofit, if required.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	724.4	767.0	726.7	780.3	759.8	3,758.2
PB 03 FYDP	736.0	821.3	774.8	841.6	812.8	3,986.5
Difference	11.6	54.3	48.1	61.3	53.0	228.3

l. Bradley M2A3 Upgrade Recap. Funding provides a system upgrade for the Bradley. Total recap includes Commander's Independent Viewer, Ballistic Fire Control, 2nd GEN FLIR, Improved Electronics/Diagnostics, Embedded FBCB2, Squad Leader's Display, and upgraded engine/transmission/suspension.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	395.2	465.8	453.1	292.5	187.7	1,794.2
PB 03 FYDP	401.7	407.7	426.9	355.9	296.5	1,888.7
Difference	6.5	58.1	26.2	63.4	108.8	94.5

m. Tank Main Armament System (TMAS). MDEP funds programs that support the Army Transformation Campaign Plan (TCP) by providing the lethality for the current and future tank and medium-caliber and other direct close combat systems. Executes the development of current and future tank and medium caliber ammunition, cannon, autoloaders and associated fire control to meet the warfighter's needs. PM-TMAS is unique in that it funds development and procurement supporting the TCP in all three of the Transformation Forces: Legacy, Interim, and Objective.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	72.5	64.6	83.5	84.9	87.3	392.8
PB 03 FYDP	62.7	66.3	66.0	222.4	279.7	697.1
Difference	9.8	1.7	17.5	137.5	192.4	304.3

n. Javelin. Javelin is The Army's only infantry fire-and-forget anti-tank missile system now in fielding. It is a legacy-to-objective weapon system. Javelin is highly lethal against tanks with both conventional and reactive armor. Additional special features include the top-attack and direct-fire mode, advanced tandem warheads, imaging infrared seeker, target lock on before launch, and soft launch. Javelin's Command Launch Unit (CLU) incorporates an integrated day/night sight that also uses a stand-alone mode for battlefield surveillance and target detection.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	256.0	192.9	155.2	20.0	16.2	640.3
PB 03 FYDP	254.7	191.3	153.6	197.7	120.7	918.0
Difference	1.3	1.6	1.6	177.7	104.5	277.7

o. Common Missile. Common Missile provides a smaller, lighter, modular, and upgradeable missile that meets infantry, aviation, and armor requirements of the next generation missile system. It effectively replaces the expiring stockpile of TOW and Hellfire missiles. Common Missile features enhanced fire-and-forget capability and will accomplish both ground and air missions, providing flexibility during combat operations by enhancing lethality of Bradley-equipped forces, Apache Attack Helicopters (AH-64), the Comanche Reconnaissance Helicopter (RAH-66), and the FCS.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	35.6	48.8	65.1	66.6	113.2	329.3
PB 03 FYDP	53.0	85.0	77.0	87.0	123.0	425.0
Difference	17.4	36.2	11.9	20.4	9.8	95.7

p. Tech Demos, Armament. Matures and demonstrates advanced technologies for non-missile weapon systems and munitions, ranging from small arms to large caliber direct and indirect fire systems. Key initiatives include Multi-Role Armament and Ammunition System (MRAAS) for FCS; Objective Crew Served Weapon (OCSW); Explosively Formed Penetrator (EFP) and Shape Charge (SC) warheads; and Joint Service Small Arms Program (JSSAP)

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	39.2	35.1	60.8	80.5	85.0	300.6
PB 03 FYDP	72.5	43.4	68.8	62.6	66.2	313.5
Difference	33.3	8.3	8.0	17.9	18.8	12.9

q. Tech Demos, Electronics. Enhances Army reconnaissance, surveillance, and target acquisition enabling Objective Force operations. Develops and demonstrates advanced Airborne and Ground Night Vision, Electro-Optical, and Radar capabilities. Demonstrates Intelligence and Information Warfare techniques and systems to intercept or deny enemy communications and defeat enemy sensors.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	45.0	50.8	64.7	71.1	75.4	307.0
PB 03 FYDP	46.0	53.6	59.4	68.7	75.7	303.4
Difference	1.0	2.8	5.3	2.4	0.3	3.6

r. Medical Advanced Technology. Army is lead agent, designated by Congress, for DoD vaccine, drug, and materiel development programs for medical countermeasures to battlefield threats. This includes vaccines against naturally occurring infectious diseases of military significance, combat casualty care, military operational medicine, and telemedicine research. The program also funds Food and Drug Administration requirements for technology transition to Advanced Development.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	11.9	14.9	12.6	10.4	11.9	61.7
PB 03 FYDP	11.9	19.9	16.0	10.3	11.8	69.9
Difference	0.0	5.0	3.4	0.1	0.1	8.2

s. Office of the Chief of Engineers (OCE) Demos of Technology. Matures and demonstrates advanced military engineering technologies for the Objective Force. Demonstrates rapid construction, novel soil stabilization, and dust retardation technologies. Program also demonstrates advanced force protection technology for lightweight, low-cost blast/ballistic protection, signature reduction, rapidly emplaced decoys, and vulnerability assessment/mitigation of terrorist threats to enhance Objective Force survivability.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	22.1	26.3	28.0	28.8	30.2	135.4
PB 03 FYDP	16.6	19.9	21.6	22.1	23.3	103.5
Difference	5.5	6.4	6.4	6.7	6.9	31.9

Annex C: Denying Enemies Sanctuary by Providing Persistent Surveillance, Tracking, and Rapid Engagement with High-Volume Precision Strike, through a Combination of Complementary Air and Ground Capabilities, Against Critical Mobile and Fixed Targets at Various Ranges in All Weather and Terrain

1. Precision Engagement Overview

The Department of Defense requires a broad range of strike capabilities across the full spectrum of conflict. Strike integrates dominant maneuver and precision engagement to defeat the adversary decisively. Maneuver is the ability to gain positional advantage with decisive speed and overwhelming operational tempo. Precision engagement involves the use of kinetic and non-kinetic weapons to inflict damage on, seize, or destroy an objective. The key element of strike operations is gaining positional advantage to improve the timeliness, range, precision, and impact on the target. The Joint Force, adept at overcoming anti-access and area denial strategies, attacking throughout the depth and breadth of the battlespace, and defeating fixed and mobile targets in all terrain and weather conditions, provides this capability. Strike operations with this Joint Force enhance precision engagement through full spectrum attack enabled by robust C4ISR and an enhanced suite of systems and munitions. Effective strike operations requires maneuver of forces and precision engagement by these forces. Versatile capabilities include the ability to: rapidly project and sustain military forces; maneuver forces to achieve positional advantage and decisively defeat enemy forces, and control populations, territory, and resources; effectively attack forces and systems of value to our adversary throughout the breadth and depth of the battlespace; and, achieve decision superiority and information dominance through integrated C4ISR.

The Army provides capabilities that are critical to Joint precision engagement through the Army's role as the dominant land power force for conducting full spectrum, Joint US military operations. Army intelligence, surveillance, reconnaissance (ISR), maneuver, and fires shape the battlespace in depth, counter enemy precision engagement systems, and provide support for the conduct of decisive operations. In this role, the Army enables and complements Joint operations by locating and engaging targets tied directly to decisive points and centers of gravity such as key enemy anti-access systems. It accomplishes this by selecting, organizing, and incorporating the use of maneuver and fires within and between units enabled by advanced C4ISR capabilities, applicable munitions, and equipment to attack these targets.

Decisive operations consist of the rapid, integrated and near simultaneous application of Joint Forces throughout the area of operations, enabled by continually updated situational understanding. During decisive operations, precision engagement compels the enemy to disperse, restrict maneuver, and seek sanctuary, making him vulnerable to piecemeal destruction by US ground forces. Conversely, enemies that attempt to mass as a more effective defense against ground attack, become more vulnerable to

precision fires. Additionally, the temporary effects frequently achieved by precision fires become permanent through the accompanying, supporting action of land forces. At the same time, complementary precision fires will always enhance, protect, and accelerate the speed and power of ground maneuver, including operational maneuver. Together, the artful combination of precision engagement and ground force capabilities pose a multidimensional threat of destruction that the enemy cannot escape or counter effectively. In addition, the combination enables a high operational tempo and creates disintegrative and dislocating effects on the enemy's dispositions, hastening his defeat.

The Army's unique contribution includes providing capabilities that can complement and extend Joint ISR capabilities. Moreover, forces trained in identifying enemy sanctuaries, conducting persistent surveillance and target tracking, and coordinating the delivery of timely air-ground maneuver task forces supported by high-volume area and precision fires provide enhanced capability for the Joint Force Commander. Through the use of highly survivable, lethal, all weather, and all-terrain capable precision delivery systems, munitions, and forces, the ARFOR Commander or Joint Force Land Component Commander provides the JFC with a persuasive deterrent or fighting capability that is a land based, responsive and persistent, day and night precision engagement capability in all environments.

2. Precision Engagement Transformation

a. Transforming to an Objective Force

The Army's Objective Force embodies precision engagement through a combination of maneuver, fires, and information operations. As an offensive-oriented force, it conducts operational maneuver from strategic distances executing synchronized, distributed operations as part of a Joint Force to destroy key enemy capabilities in a distributed, non-linear battlespace. It provides seamless C4ISR, FCS, integrated sensors, attack and reconnaissance helicopters, expanded maneuver and fires with standoff, line of sight and non-line-of-sight capabilities. These attributes enable the Objective Force to achieve total disintegration, dislocation, and destruction of enemy forces from tactical through operational levels. Direct lethal action of Objective Force maneuver and fires forces will contribute to the following Joint efforts:

- Destroy and degrade enemy anti-access systems such as long-range missiles and artillery, unconventional forces, enemy surveillance and targeting capabilities
- Participate in the destruction of enemy precision engagement systems. This represents a key task, given the significant threat that enemy systems represent to Joint Force freedom of action and maneuver
- Seize key terrain and facilities required to support force flow and decisive operations, extension of the area of influence, and isolation of enemy forces
- Degrade key enemy capabilities (C4ISR and logistical structures) essential to enemy offensive operations

- Provide essential C4ISR and logistical support to the Joint Force within and external to the JOA

- Support the Joint Force Commander's information operations to gain momentum superiority

b. Maneuver

Both current and future operational environments will engage enemies who will avoid direct confrontation with US forces whenever possible. The overwhelming combat power of our ground and air forces compels the enemy to seek ways of mitigating Joint Force capabilities. By hiding in mosques, churches, and hospitals, a tactic that enables him to "hug the innocents," the enemy creates a dilemma for the Joint Force which must then discriminate among combatants and non-combatants. Dug-in, camouflaged, and concealed in hardened positions or in caves, and deep bunkers, masked by innocent populations to avoid either detection or attack by fires, our adversaries seek to evade precision fires and dominant battlespace understanding. Ground forces are often the only precise instruments that can attack these conflicted targets.

We will solve this dilemma both today and in the future, by obtaining a positional advantage over the enemy with ground maneuver forces. Effective employment of ground maneuver forces is highly dependent on assured mobility, without interruption or delay, to gain positional advantage to accomplish the mission. Persistent surveillance, tracking, and targeting of an enemy by technology-enabled forces are Army core competency requirements for units regardless of their size. A force with high volume precision organic fires and maneuver, together with other precision engagement capabilities for the close fight, will compel the enemy to choose between two courses of action. Either he will flee his sanctuary or he will accept the risk of battle to avoid defeat in detail by an overwhelming maneuver force. In either case, enemy dislocation, disintegration, and destruction are inevitable. The force of maneuver operations, in essence, "roots out" the enemy from his sanctuary and assures his destruction. We accomplish this through the combination of maneuver and fires enabled by organic and Joint ISR, and engagement capabilities. When we go after them, we want to take them down. Land force contributions integrated into Joint force formations bring decisiveness to the equation.

Complementing its ability to maneuver forces once in a theater of operations, the Army provides--through forward basing and forward presence operations—immediate maneuver capability worldwide. This capability enhances forced and early entry operations, typified by the current and ongoing operations in Afghanistan. Specifically, elements such as digitized Ranger Units and the 82nd Airborne Division provide early entry operations to expand control of key areas and prepare the way for follow-on forces. This provides robustness in precision engagement capability. The overseas presence of Joint, ground forces, combined with the capabilities of Army digitization, provides the capability for continuous and seamless "eyes" on the target and global reach, enhancing all aspects of precision engagement capability.

c. Precision Engagement Enhanced by the Soldier

Persistent surveillance and tracking of an enemy who seeks refuge in sanctuaries presents a tremendous challenge to Joint air and ground forces. The Army uniquely contributes to this effort by providing "boots on the ground" with an organic precision effects capability. Employing land force provides additional magnitudes of precision, perhaps impossible by other means, and is particularly effective in demonstrating national resolve. The use of Soldiers on the ground provides a critical combat enabler to achieve precision. At ranges of just inches to strategic distances on the battlefield, the soldier functions in the role of a sensor, decision maker, shooter, and assessor as part of a Joint team.

The individual soldier is the ultimate sensor. A soldier observes, listens, feels, and processes information. He analyzes, judges, thinks, prioritizes, decides, and communicates what he knows and does so in real time. The soldier is a shooter, who designates, directs, or calls for precision engagement. He does this from inches to the limit of his technology--enhanced line of sight with his eyes, laser, or gun sight on the target, in all weather conditions and terrain sets. Most importantly, he is disciplined and trained, understands purpose and intent, and can assess, first hand, the battle damage and the effects of precision engagement. In effect, the soldier on the ground is the ultimate precision weapon.

The Army has several programs designed to enable and enhance the soldier's role in precision engagement. Underlying this program development is the concept of the "Soldier as a System." In this concept, the soldier, analogous to a combat platform, has numerous component parts that must work in concert for full effectiveness. A central component of the "Soldier as a System" strategy is the Land Warrior program: a modular fighting system for infantry Soldiers that integrates many components and technologies into a lethal, survivable, mobile, and situationally aware soldier system. The Army has successfully demonstrated the value of the Land Warrior system and is examining ways to accelerate its production and fielding. During the Joint Contingency Force Advanced Warfighting Experiment (JCFAWE) in September 2000, lessons learned validated our initial insight that the Land Warrior system increases a unit's lethality and operational tempo. Soldiers who were not equipped with the system learned very quickly to attach themselves to the Land Warrior unit. Pertinent findings from the exercise demonstrated:

- Unit assembled combat power faster than average
- Soldiers and leaders had more confidence while moving at night
- The System facilitated aggressive reaction to combat
- Leaders were able to verify and clarify the Blue force tactical situation
- Land Warrior eliminated the potential for fratricide

Lessons learned from actual combat use in Afghanistan corroborate the testing results from JCFAWE. In particular, elements of the Land Warrior system such as the PVS-14 Night Vision device, the PEQ-2A laser pointer, and the MBITR (Multi-Band Inter-team Radio), have already proven invaluable to our SOF and other Army forces. The Army will field Land Warrior to the current force from the near to the far term in a series of blocked improvements.

Of particular note, the accelerated fielding of critical equipment has enhanced the SOF role in Precision Engagement. For instance, to facilitate SOF operations, the Army is modernizing and equipping SOF aircraft with the Advanced Threat Infrared Counter Measures (ATIRCM) and the Army Suite of Integrated Radio Frequency Countermeasures (SIRFC). Other fielded equipment that enhances both precision engagement and soldier survivability includes:

- Large Range Advanced Scout Surveillance System (LRAS3)
- Light Weight Laser Rangefinder Designator (LLRD)
- Modular Weapons System (MWS) M4 Carbine
- Combat Survivor Evader Locators (CSEL)
- Key aspects of the Army Battle Command System (ABCS) that provides greater digital connectivity

The Army believes that SOF modernization is among its highest equipping priorities, recognizing the critical role SOF forces conduct for the Joint commander

d. Enhancing Army Precision Engagement Capabilities: Near, Mid and Far-Term

To achieve the Army's goal of transforming to the Objective Force, it pursues a modernization strategy that focuses on producing and fielding revolutionary new capabilities for the future force. Simultaneously, we maintain near term combat readiness and battlefield superiority for the current force. Accomplishing these goals requires a careful balancing and allocation of limited resources. Terminating and/or restructuring a number of Army programs as well as developing and defining a recapitalization strategy that limits recapitalization to 17 critical systems and provides recapitalized platforms to selected, high priority units in the current force has achieved this balance in recent years. This modernization strategy accepts risk in the near and mid-term causing turbulence and unexpected change. However, it has also succeeded in freeing up sufficient resources for the Army to invest in new technologies that will enhance its warfighting effectiveness in the future.

A net benefit of this modernization strategy is The Army's ability to conduct persistent ISR and deliver high-volume precision strike. In turn, we terminated or restructured some precision engagement systems that did not provide a good fit into the Objective Force concept, or did not meet program goals. This latter category includes:

- Command and Control Vehicle
- Future Scout and Cavalry System
- Airborne Prophet
- Multiple Launch Rocket System (MLRS)
- Smart Tactical Rocket (MSTAR)
- Army Tactical Missile System (ATACMS) Block IIA
- Tube-Launched, Optically Tracked Wire-Guided (TOW) Fire and Forget missile
- Tank Extended Range Munition

Termination or restructuring also affected numerous other systems not directly linked to ISR and precision strike capabilities. For each of these systems, the Army made a difficult, deliberate decision to forego the capability offered and instead invested the monies harvested in new, emerging technologies that the Objective Force would use. Among these technologies that affect precision engagement are:

- Networked fires
- Multi-role cannons and munitions
- Advanced autonomous robotics
- High energy lasers
- Battle command on-the-move
- Armed/unarmed and micro UAVs
- Disposable sensor networks
- Advanced soldier systems such as the example of Land Warrior

Still, the Army is pursuing, with limited available resources, improvements in its ISR and precision strike capabilities for both the near and mid-term periods. Recently, an amendment to the FY 03 President's Budget terminated plans for The Army's Crusader program. Crusader had filled a critical Army battlefield requirement to provide precision and area fires in direct support of maneuver forces. Since the battlefield requirements for which Crusader was developed remain, The Army has developed an investment portfolio designed to meet them in both the near and far term. As part of this portfolio, The Army will make additional investments in FCS, Excalibur artillery projectiles for NLOS only, UAV targeting, networked fires, GMLRS, HIMARS, and PGMM. The Army will also place monies in limited upgrades and product improvements for its aging fleet

of Paladin howitzers. The Army believes that the cumulative effect of these investments will increase precision engagement capabilities for the Objective Force.

Near-Term. In the 1990s, the Army began an ambitious program to "digitize" its force in an effort designed to shorten the plan-prepare-execute cycle. It would provide a real time COP of the battlefield, control and set battlefield tempo, and greatly increase the overall lethality and survivability of the force. Almost a decade into the digitization process, The Army has achieved a "First Digitized Division" (4th Infantry Division) capability down to platform level and is rapidly approaching a First Digitized Corps (III Corps) capability. Concurrently, The Army has been selectively digitizing other units. In the near term, The Army is also developing and fielding the Tactical Unmanned Aerial Vehicle (TUAV) that provides the commander with enhanced situational understanding, target acquisition, battle damage assessment, and enhanced battle management capabilities. Objective TUAV payloads (mid and far-term) will include advanced electro-optic/infrared (EO/IR) sensors, all weather synthetic aperture radar, moving target indicator (SAR/MTI), and advanced signals intelligence sensors.

Mid-Term. In the mid-term, The Army will enhance its persistent ISR capabilities by fielding Prophet, the maneuver commander's all weather, 24/7, multi-intelligence ground platform. It will provide a near real time picture of the battlespace through the employment of signals intelligence (SIGINT) and measures and signature (MASINT) sensors. It will detect, locate, identify emitters from the HF to the SHF bands, and detect the movement of personnel and vehicles using ground sensors. The fused intelligence product provided by Prophet will greatly enhance situational understanding and ensure increased force protection.

The Army will also add to its ISR capabilities by developing and fielding an Extended Range-Multi-Purpose (ER-MP) UAV. The Joint Requirements Oversight Council (JROC) has recognized the requirement for a UAV that will provide reconnaissance at operational ranges, up to 200 km. This system will support missions across the full spectrum of operations, and possess capabilities for extended range, endurance, and payload.

The Joint Force Commander will be able to exploit the ISR provided by the above systems with Army critical high-volume precision strike systems that include a recapitalized and improved MLRS and the High Mobility Artillery Rocket (HIMARS) system. HIMARS is a wheeled version of MLRS designed to provide the Joint Force early entry forces with a rapidly deployable, high volume, operational and tactical precision engagement capability. The Guided Multiple Launch Rocket System (GMLRS) is an extended range rocket guided by GPS and an inertial reference system with a potential unitary variant. It provides a precision fire capability to both MLRS and HIMARS, and provides an increased range while reducing the number of rockets needed to achieve target effects. Air and Missile Defense systems, a critical component of the Army's precision engagement efforts, will experience important upgrades in the mid-term. Improvements include the fielding of PAC-3 that provides a remote launch capability with extended range and altitude, as well as a hit-to-kill missile capability.

Far-Term. Comanche is the Army's Objective Force reconnaissance and attack helicopter that The Army intends to operate as part of the FCS family. Comanche is among the first FCS components the Army will procure and field. Fully capable of interfacing with Joint components via Link-16, Comanche will have the ability to develop and share a COP, and orchestrate lethal, precision fires in support of the Joint commander. In conjunction with UAVs operating in the tactical and operational battlespace, Comanche will provide exceptional situational awareness that will provide the JFC with an unparalleled ISR capability.

Aerial Common Sensor (ACS) provides the Joint commander with a worldwide, self-deployable multi-intelligence asset that will bring global relevance and tactical responsiveness through the Distributed Common Ground Station (DCGS) architecture. The DCGS architecture provides the timely tasking, processing, exploitation, and dissemination (TPED) of ISR data. Currently, ACS is the only programmed DoD airborne ISR system capable of providing SIGINT precision targeting. It will provide commanders with tailored, multi-sensor intelligence and will include SIGINT (COMINT and ELINT) and MASINT payloads to include EO/IR and SAR/MTI sensors. ACS will support early entry operations and forward deployed forces. ACS will accomplish this by providing timely indications and warning, dominant situation awareness, battle management, and precision targeting capabilities.

Fielding JLENS supports another key component in deploying persistent surveillance and tracking sensors in the mid-term. An elevated sensor, JLENS overcomes line-of-sight limitations inherent in ground-based radars, provides a Single Integrated Air Picture (SIAP). It will enable Joint air defense weapon systems to engage cruise missiles and UAVs carrying WMD payloads at their full kinematical range.

Currently, The Army has numerous battlefield systems that provide ISR and high volume and precision engagement capabilities. Unfortunately, we developed most of these systems as independent programs that fail to exploit the advantages of information. However, the anticipated design of the FCS will provide a precise, capable force that has the agility and versatility required for precision engagement across the full spectrum of military operations. Leveraging advanced technologies with the capability to incorporate future advances as they emerge, FCS will provide a secure C4ISR system that will enable the persistent surveillance and tracking of enemy forces. Over the next year, The Army will continue to examine FCS technology options, particularly pertaining to munitions' delivery. FCS may employ line-of-sight, beyond line-of-sight, and non line-of-sight capabilities ensuring the rapid and precise engagement of targets.

Also in development are a number of systems that will complement the C4ISR and delivery means afforded by FCS. The development and fielding of the Excalibur advanced artillery munition will optimize field artillery capabilities. With its extended range and GPS-guided accuracy, Excalibur virtually assures first round effects.

Recognizing fiscal constraints, the Army values the economies achieved via Service and Joint commonality of programs and components. One example is The Army's Common Missile program that will use common components for a single ground and air

platform missile acquired through a block acquisition strategy. The Navy's Advanced Gun System (AGS), currently in design for the DD-21, leverages the Excalibur artillery munition. The AGS' Extended Range Guided Munition shares ordnance technologies with Excalibur as well as other Army unitary and sub-munition programs.

e. More Than Materiel Solutions

Precision engagement challenges also demand more than what a set of materiel solutions provides. As The Army transforms to the Objective Force, it begins a holistic examination of the complex interrelationships between doctrine, organizations, training, leader and soldier development, materiel, personnel and facilities (DOTLM-PF). Effective development of advanced precision engagement capabilities mandates that The Army optimize investments by ensuring the proper synchronization across the DOTLM-PF components.

The Army conducts precision engagement as part of a Joint warfighting effort. Today, Army staff elements work closely with the Joint Staff to identify the proper precision engagement operational architecture for the JFC. The expectations are that this effort will last for several years and will result in a set of precision engagement systems architectures, fully supported by proper modeling and simulation that will validate the proposed designs. The military's first Precision Engagement Capstone Requirements Document (PE CRD) will represent another critical product from this effort. The JROC will review and approve the PE CRD along with the Operational and Systems Architectures. Concurrently, The Army will continually revise and adjust its warfighting doctrine as it transforms to an Objective Force capability.

Recent Joint and Service studies show that there are significant challenges that we must meet. For example, the most recent Defense Science Board (DSB) Summer Study points out that the Services face significant challenges in the persistent tracking of enemy forces, especially with regard to mobile targets and targets, and targets for which we have imprecise intelligence. The DSB identified a number of promising technologies to address this issue, including Link-16, Foliage Penetration Radar, Gridlock, DCGS, and GPS improvements. The Army feels that these technologies will complement the ability of soldiers on the ground to locate, target and track fixed and mobile targets, and to provide thorough and immediate battle damage assessment.

3. Summary

Successful precision engagement begins with the power of a ground maneuver capability that dislodges enemy forces from their sanctuary. It ends with the linkage of sensors to delivery systems that combine to provide lethal, accurate, and timely effects on enemy forces.

As The Army transforms to an Objective Force design and capability, it will explore new and promising technologies, such as those cited by the DSB, to develop and exploit enhanced capabilities for precision engagement. FCS, Comanche, HIMARS, Prophet, and other systems detailed in the preceding paragraphs are examples of The Army's intent to develop an overwhelming ISR and precision engagement capability. An

overwhelming ISR and precision engagement capability is paramount to support the Objective Force's Joint role as a dominant maneuver and precision engagement force.

Inherent in this role is the requirement for all means of precision engagement to operate within a Joint and combined "system of systems," and to have the same strategic deployability and tactical mobility as maneuver. This means that we must also maximize commonality of organizations and equipment as well as fully leverage information technologies. Army Transformation will meet these key requirements. However, Transformation also recognizes and will depend upon another critical factor—the Soldier. On the asymmetrical, chaotic, and non-linear battlefield, the soldier on the ground operates, and will continue to operate, as an indispensable part of the Joint team. Today, operations in Afghanistan reaffirm the Soldier's role that enables persistent surveillance and reconnaissance and the right combination of maneuver, fires, and information operations to achieve precision engagement. Our Soldiers bring the essential human dimension to warfighting dominance.

4. Programs

The following major Army programs support this critical operational goal. The discussion below includes funding for these programs over the FYDP.

a. Common Missile. The primary weapon system for Comanche and a candidate lethality system for FCS, Common Missile is an Objective Force system. Additionally, with appliqué kits, Common Missile will provide backward compatibility to dominant maneuver ground forces equipped with ITAS and the Improved Bradley Acquisition System (IBAS). Able to engage threat armor and ADA targets at extended ranges, Common Missile will maximize the survivability of our ground and air platforms and their crews.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	35.6	48.8	65.1	66.6	113.2	329.3
PB 03 FYDP	53.0	85.0	77.0	87.0	123.0	425.0
Difference	17.4	36.2	11.9	20.4	9.8	95.7

b. Tactical Unmanned Aerial Vehicle (TUAV). Provides reconnaissance, surveillance, and target acquisition (RSTA) to the tactical maneuver commander. Initial range of 50 km, day or night, in limited adverse weather conditions . Key Performance Parameters (KPPs) include Electro-Optical/Infrared Payload, MOGAS/Heavy Fuel operation, and C4I interoperability.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	134.8	134.7	125.3	10.4	8.4	413.6
PB 03 FYDP	180.9	189.4	144.7	259.5	254.0	1,028.6
Difference	46.1	54.7	19.4	249.1	245.7	615.0

c. Guided Multiple Launch Rocket System (GMLRS). Provides counterfire, suppression of enemy air defense, and the time sensitive destruction of multiple types of targets. Other benefits: reduction in the logistics burden (transportation of rockets), reduced chances of collateral damage and fratricide, and reduced mission times (resulting in increased system survivability).

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	53.0	85.7	104.1	100.5	90.5	433.7
PB 03 FYDP	56.4	85.7	104.1	100.5	90.5	437.2
Difference	3.4	0.0	0.0	0.0	0.0	3.5

d. Excalibur, Advanced Artillery Munitions. Provides the maneuver force with improved all weather, day and night fire support through precision guided extended range, accuracy enhancing, fratricide reducing, more lethal family of 155mm projectiles in support of Legacy and Interim Forces. Precision guided extended range, accuracy enhancing, fratricide reducing, more lethal family of 155mm that is compatible with all digitized 155mm platforms.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	42.4	72.0	72.7	59.3	52.2	298.6
PB 03 FYDP	38.3	74.2	69.8	52.0	51.2	285.6
Difference	4.1	2.2	2.9	7.2	1.0	13.1

e. Aerial Common Sensor. ACS is The Army's objective airborne Intelligence, Surveillance, and Reconnaissance (ISR) platform, merging the capabilities of legacy Airborne Reconnaissance Low (ARL) and GUARDRAIL Common Sensor (GRCS) into a multi-functional system with advanced signals intelligence (SIGINT), measurement and signatures intelligence (MASINT), and imagery intelligence (IMINT) payloads. ACS will provide the precision targeting data needed by future deep strike weapon systems in the Objective Force.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	72.0	72.0
PB 03 FYDP	0.0	0.0	0.0	0.0	89.3	89.3
Difference	0.0	0.0	0.0	0.0	17.3	17.3

f. Long Range Advanced Scout Surveillance System. LRAS3 provides scouts with a long-range reconnaissance and surveillance sensor system that significantly enhances their capability over the currently fielded systems. Consists of a line-of-sight, multi-sensor suite: 2nd Generation Forward Looking Infrared Radar with long range optics, an eye safe laser rangefinder, a day video camera, and a global positioning system with attitude determination.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	50.2	51.6	51.6	42.0	0.0	195.3
PB 03 FYDP	49.9	51.2	51.1	43.3	1.8	197.3
Difference	0.2	0.4	0.5	1.3	1.8	2.0

g. Distributed Common Ground System – Army (DCGS-A). DCGS-A is the cornerstone "system of systems" that provides the framework for a networked Intelligence, Surveillance, and Reconnaissance (ISR) capability. DCGS-A is a modular, scaleable, and interoperable family of distributed intelligence processing and exploitation systems that correlate ISR data from national, Joint, and Army sensors. DCGS-A forms The Army node of the OSD-directed Joint DCGS network allowing for rapid electronic tasking, processing, exploitation, and dissemination of national and other service ISR capabilities. DCGS-A will replace all current and future Army intelligence processing systems.

($M)	FY03	FY04	FY05	FY06	FY07	FY 03-07
PB 02 FYDP	153.8	176.4	148.2	125.4	134.6	739.1
PB 03 FYDP	159.9	197.8	161.6	172.4	199.6	891.3
Difference	6.1	21.4	13.4	47.0	65.0	152.2

Annex D: Assuring Information Systems in the Face of Attack and Conducting Effective Information Operations

Introduction

The Army's Transformation efforts significantly enhance unique Army capabilities that enable the Joint Force to assure information systems in the face of attack, and to conduct effective Information Operations (IO). Army IO Transformation will accomplish this goal through development of adaptive Soldiers and leaders that are an integral part of its success. The Army will support them with a transformed IO force structure and transformational IO technology.

Effective Army IO, to include assurance of information systems, results from the successful integration of traditionally separate military activities and capabilities. These military activities and capabilities enable the commander to synchronize the protection of friendly information and information systems. Simultaneously, the commander can take the necessary steps to exploit, deny, destroy, or deceive adversary information and information systems, and influence adversary, and other decision makers.

We will accomplish IO Transformation that effectively supports the Joint Force along three broad axes:

- Provide full spectrum IO planning and execution
- Enable decision superiority
- Create and preserve opportunities for decisive Joint Force operations

Objective Force units will have full spectrum IO planning, directing, and execution functions fully integrated as a core competency in the staff. We will also embed IO capability in dedicated force structure, to support the Joint Force. In terms of decision superiority, the Objective Force will offer worldwide, real-time predictive understanding and decision superiority in which the Joint Force has complete, real-time visibility of the entire infosphere. It also provides a robust analytical capability to identify patterns of attack and defense. For the defense and attack of information systems, The Army is moving to support the Joint Force by embedding within the Objective Force, autonomous, self-synchronizing automated capabilities to frustrate an adversary's attacks on our information systems and to counterattack his decision support tools. Again, we must emphasize that The Army's principal contribution to this critical operational goal lies primarily in providing the Joint Force with adaptive Soldiers and leaders capable of rapidly assimilating and mastering the changing patterns of IO. This includes a supporting cadre of Warriors educated and experienced in the conduct of IO.

1. Provide Full Spectrum IO Planning and Execution

A. Near Term: Full Spectrum Multi-Echelon IO Planning and Directing plus Centrally Managed Field Support Teams (FSTs). Currently, Land Information Warfare Activity

(LIWA) FSTs, focus mainly on contingency operations and perform IO missions. As needed, FSTs deploy to various Army component echelons on a temporary duty (TDY) basis. By encouraging ongoing involvement with the supported command, FST personnel increasingly have a full understanding of the command's operational objectives that, in turn, enhances the synergistic effects of IO. Efforts to institutionalize the training of The Army's IO (FA 30) officer force have culminated in a US Army Training and Doctrine Command approved program of formal institutionalized training. The first such training, which began in June 2001, builds upon LIWA on-the-job training (OJT), and Joint institutional training to professionalize the FA 30 officer force. Furthermore, tactical scenarios currently utilized to support both institutional and OJT have provided increased opportunity and capability to incorporate IO events that lead to observable, measurable effects. Despite such successes, The Army will not accept maintaining the status quo as an option.

B. Mid Term: G3 Staff: Full Spectrum IO Planning & Directing (Div & Above) plus Army Component Command (ACC)/Land Component Command (LCC) Aligned FSTs. Successful conduct of full spectrum IO at the strategic, operational, and tactical levels of war is critical to the attainment of information superiority (IS). We are increasingly aware of the attainment of this objective. Most commanders and staff no longer hold a simplistic view that IO involves capabilities (e.g. OPSEC and physical security) historically embedded in military operations at all echelons and at all levels of war. They realize as well, that some, highly specialized capabilities (e.g. PSYOP and counterintelligence) require the inclusion of outside units or specialists in their organizations to provide knowledgeable advice concerning their application and integration. Nor do they view IO as a one-dimensional capability (e.g. public affairs [a doctrinally related activity] or simply automation). These factors serve to emphasize that commanders and their staffs are increasingly aware and understand IO policy and doctrine. An aggressive educational program supported by published policy and doctrine that further clarifies the role, capabilities, and employment of IO on the modern battlefield is critical. Part of that clarification will address the role and linkages of IO at the tactical, operational, and strategic levels and the requirement for operational, permanent, fully staffed IO cells. Further augmentation by traditionally associated ACC/LCC aligned FSTs will ensure seamless planning and execution. The Army is taking the first step of identifying and mapping out a strategy for satisfying Interim and Objective Force full spectrum IO requirements. This action will have significant impact in determining Army-wide IO training (offensive and defensive), identification of training resources, and creation of IO force structure. The strategy will directly affect the appropriate staff sections for Division, Corps, and Army Service Component Commands. Once the force structure is determined, we anticipate that IO cells will become operational, permanent, and fully staffed with a corps of officers, warrant officers, and enlisted personnel who will receive special training and appropriate education (professional military education and appropriate civilian education). To date, creation of IO cells at Corps and Division levels that possess these elements is in progress. Ultimately, all levels will seamlessly perform planning and execution.

C. Far Term: Embedded IO Cells: Full Spectrum IO Planning, Directing and Execution (Bde & Above). The key to the warfighting effectiveness is the capability to

acquire, process, and leverage information in order to “orient, observe, decide, and act.” To establish sufficient capability and authority to accomplish this, The Army will organize IO cells from the brigade level and higher as the focal point to synchronize IO and achieve IS. Furthermore, a professional career force that has specific career paths leading to general officer, CW5, and SGM will staff IO positions. This notwithstanding, The Army will ensure that the Objective Force has IO fully integrated as a core competency in all staffs; and, that Soldiers of all ranks (E-1 to O-10) understand and can enable IO execution.

2. Support Situational Awareness and Understanding

A. Near Term: Event Oriented IO Situational Awareness. Currently, emerging lessons learned through automated information systems, telecommunications, sensors, and weapons engagement technologies provide important, new information. These IO lessons learned are leading to the development of new tools and techniques. With them, we analyze the effectiveness of platforms, operating systems, application programs, and environments. The Army deploys FSTs to selected theaters, providing coordinated and responsive IO capability. Tailored analytical products frequently generated on a quick-response basis meet a deployed team’s immediate needs. Teams have increased focus on preemptive versus post strikes results from tracking, monitoring, and influencing potential adversaries operating within the electronic spectrum. Situational Awareness (SA) gives the warfighter the tools necessary to provide timely, relevant information to the right person in a useable form that facilitates understanding and decision-making. SA today is essentially a view of the battlespace provided by the myriad of information sources, both sensors and human.

B. Mid-Term: IO BattleSpace Visibility. The scope and objective of battlespace visibility is possession of requisite skills and processes. These elicit credible, legitimate information, provide a COP to all commanders and their staffs, and utilize battlespace awareness, and visualization techniques. SA in the mid term will allow commanders and staffs across the force, to enhance collaboration and synchronization of not only IO but also all other aspects of Army operations.

C. Far Term: Worldwide Real Time “SenseMaking.” Robust connectivity and interoperability, as well as instantaneous shared SA and knowledge provide information superiority that directly enhances survivability by reducing risk. Improved SA enables the digitally equipped Objective Force to avoid unfavorable or surprise engagements, reduces the risk of fratricide, and enables more dispersion of friendly forces. Consequently, we reduce vulnerability without sacrificing the ability to mass offensive capabilities against an adversary. Faster, better information available to a competent warfighting organization will afford its commander and staff situational dominance (i.e. the ability to "see first, understand first, act first and finish decisively”). The scope of the global information environment accentuates both the critical importance and the role of worldwide, real time SA to the Objective Force commander. The continuing evolution of the global information environment augurs that IO will become as important an element of operations as those currently conducted on land, air, sea, and space.

3. Create and Preserve Opportunities for Decisive Operations

A. Near Term: Handcrafted Situation-specific Offensive Tools plus Manual Reactive Defense. Current capabilities to protect and defend information and information systems are evolving from a reactive focus, with proactive initiatives centered solely on trend/indication analysis, to an increasingly predictive and proactive focus. These evolving capabilities leverage the transformational IO technology resident in the US Army Intelligence and Security Command Information Dominance Center. Due to the adoption of this transformational IO technology, developers now build tools proactively. Vulnerability assessment/red teaming of information and information systems (IO opposing force [OPFOR]) activities are increasingly coordinated and proactive, e.g. Division Capstone Exercises (DCX I and II.) Adversaries are seeking to counter sophisticated Army digital networks by denying information through passive means or attempting to penetrate or destroy communications/computer networks. Therefore, in the near term, the focus is both defensive and offensive IO. Offensive IO focuses on the adversary decision-maker and those who influence him. Defensive IO preserves the integrity of friendly information and networks. The ultimate target of IO is the human decision maker; therefore, the friendly commander will have difficulty accurately assessing the effects of those operations. Since battle damage assessment for IO is difficult, we explore it through exercises and rigorous experimentation. The establishment of a trained force of professionally certified "Cyber Warriors" that will provide support to the Joint Force Is currently underway.

B. Mid term: Real Time Predictive, Proactive Defense/Offense. To achieve this mid-term objective, we will coordinate IO in such a way that intercepts, identifies, locates, and localizes foreign information. This gives the capability of immediate threat recognition thus enabling decision superiority. New or transformed offensive capabilities such as computer network attack (CNA) and electronic attack techniques are evolving. These activities combined with computer network defense (CND) and electronic protect techniques defend decision-making processes by neutralizing adversary perceptions, as well as his direct attacks on our information systems. Furthermore, we will incorporate all near-term capabilities into an enhanced and proactive vulnerability assessment/red teaming (IO OPFOR) effort. This effort will focus on protecting information and information systems at all stages of their respective life cycles, reflecting critical insights garnered during the DCXs.

C. Far Term: Autonomous Embedded Defense/Offense. Embedded intelligent technologies in the Objective Force will simultaneously integrate defensive and offensive IO to provide an early warning while executing preemptive measures to hamper the adversary's ability to attack friendly C2 systems. Embedded intelligent technologies will provide The Army with the ability to conduct specific electronic reconnaissance, counter-reconnaissance, and exploitation. These functions are critical to conducting proactive defense of critical information systems. This far-term capability augments the near and mid term CND computer emergency response team (CERT) and electronic protect programs. It implements a proactive stance that counters or exploits potential threats before they inflict damage. Building upon the successes of The Army's digitization exercises, The Army will develop a world class IO OPFOR that

will ensure that will leverage all far-term offensive and defensive capabilities. IO OPFOR will focus not only on protecting information and information systems at all stages of their respective life cycles but also on all aspects of operations and training.

4. Programs

In addition to many of the major Army programs listed under the other critical operational goals, the following programs, discussed in unprioritized order, also support this goal. Discussions below include funding over the FYDP.

a. Information Dominance Center (IDC). The IDC is the epicenter of IO support to The Army and is the focal point of predictive analysis. It enables the coordination of Intelligence and IO across The Army, as well as numerous agencies and organization. Three IDC Operations and Maintenance Army funding requirements are critical:

- IO Tactical Operations Center: Provides operational IO support to the LIWA by enabling LIWA's command and control of subordinate units and efforts. Provides a common operating picture to all units via battlefield awareness and visualization techniques. Also provides a reachback capability for deployed units.

- Technology Enhanced All Source Intelligence Center: Utilizes the IDC's robust data mining and parsing tools to provide indications and warning against terrorist and other attacks. Serves as a dedicated force enabler.

- Intelligence Support Operations: The IDC serves to integrate intelligence analytic teams in support of counter terrorism and computer network operations including collection management and single source intelligence. Provides critical intelligence support to IO targeting.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	0.0	0.0
PB 03 FYDP	7.2	7.5	7.9	8.5	9.3	40.4
Difference	7.2	7.5	7.9	8.5	9.3	40.4

b. Cyber Warfare Center (CWC). The CWC initiative resources The Army's ability to conduct specific computer-to-computer electronic reconnaissance, counter-reconnaissance, and exploitation. These functions are critical to conducting proactive defense of critical information systems. Current capabilities have a reactive focus with proactive initiatives focused solely on trend/indication analysis. This program directly supports The Army's war against terrorism. This program augments the current CND CERT program by implementing a proactive stance that counters or exploits potential threats before they inflict damage.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	0.0	0.0
PB 03 FYDP	2.5	2.0	2.0	2.0	2.0	10.5
Difference	2.5	2.0	2.0	2.0	2.0	10.5

c. Army CNA. Provides The Army non-lethal alternatives to respond to threat attacks. Currently, Army capabilities are not fully developed. Requirement fully operationalizes Army CNA including necessary weapons training, doctrine, methodologies, and safeguards. The CNA research and development (R&D) initiative keeps Army CNA on the cutting edge of technology and provides R&D focused on The Army's ability to train, combat develop, and deploy special purpose electronic attack weaponry determined to be critical to The Army's war against terrorism.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	0.0	0.0	0.0	0.0	0.0	0.0
PB 03 FYDP	4.1	9.8	9.9	9.8	10.1	43.7
Difference	4.1	9.8	9.9	9.8	10.1	43.7

d. IO Field Support/Vulnerability Assessment Teams. FSTs train and support operational units, including Army units in the Balkans, on how to integrate IO planning and execution. Current funding resources all contingency operations but less than 50% of The Army's required training support for major exercises. Vulnerability Assessment Teams provide assessments of operational units' susceptibility to exploitation by, or disruption from, threat IO. Provides congressionally mandated "Red-Teaming" of the digitized and Objective Forces.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	4.4	4.5	4.6	4.9	5.9	24.3
PB 03 FYDP	8.5	8.4	9.7	11.9	13.9	52.4
Difference	4.1	3.9	9.7	7.0	8.0	28.1

e. CND. The LIWA conducts command and control protection operations in support of The Army to ensure the availability, integrity, and confidentiality of the information and information systems used by commanders. CND efforts provide the response to network incidents and intrusions as operations detect them, and they are a vital part of information assurance. Fully funds incident handling and a proactive effort that complements the IDC's predictive analysis effort.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	24.4	26.4	27.0	27.0	27.0	24.3
PB 03 FYDP	44.3	46.5	47.4	47.9	48.5	234.6
Difference	19.9	20.1	9.7	20.9	21.5	210.3

Annex E: Enhancing the Capability and Survivability of Space Systems and Supporting Infrastructure

Introduction

Successful Transformation to the Objective Force is the critical element to The Army's ability to sustain battlefield dominance in the 21st century and to provide the best possible support to the JFC. Space is the key enabler to The Army for providing the most efficient, lethal forces to the JFC in any theater. This involves meeting the needs of current and future forces. Space-based systems are essential for intelligence and communications connectivity, as well as other vital functions from navigation to targeting. Today's space capabilities make unique and essential contributions to our land force dominance. Through robust beyond line-of-sight connectivity and their ultimate high-ground perspective, space systems are essential to providing the linkages military leaders require to plan, execute, and sustain dynamic military operations. Joint warfighters will have access to near and real-time situational awareness of both red and blue force composition and disposition, detailed knowledge of battlespace and associated environment, and the status of support and sustainment efforts.

The significant contributions that space systems already make in the near term will continuously improve in the mid- and far term as The Army continues Transformation. We can categorize Army space equities in two major mission areas: force enhancement, and space control. These two areas directly support the Transformation of our Army to the Objective Force and enable Army operations in all phases of conflict in support of the JFC.

Force enhancement embodies the Joint warfighter's use of space. It is value added to battlefield functions enabling the land force to accomplish its terrestrial mission. As Objective Force requirements mature, the Army, within established Joint processes, will ensure that upgrades to force enhancement capabilities address Objective Force requirements. Technologically enhanced space capabilities are key to Objective Force capabilities. Force enhancement capabilities include beyond-line-of-sight (BLOS) communications; ISR; Positioning, Navigation and Timing (PNT); Weather, Environmental and Terrain Monitoring; and, missile warning.

As the Army grows more reliant on force enhancement capabilities, our vulnerability also increases. Rapid growth in commercial and international space capabilities increases potential adversaries' ability to monitor US forces and potentially negate US advantages in space. **Space control** takes on increased significance for land forces by ensuring dominant access to space capabilities. Gaining and maintaining space control ensures friendly forces' use of space while denying it to the enemy.

Space operations and capabilities are inextricably linked with and dependent upon supporting infrastructure. The maintenance and upgrade of space operations infrastructure includes improvements to fixed site facilities such as permanent satellite communications ground stations. These fixed site facilities include the Blue Force

Tracking Mission Management Center and the Regional Satellite Support Centers. This infrastructure supports tactical to strategic force enhancement mission areas of satellite communications (SATCOM), ISR, Theater Missile Warning (TWM), WETM, and PNT. This infrastructure also supports the space control mission areas of negation, surveillance, protection, and prevention. Additionally, it ensures the capability to control space while denying its use to the enemy.

We cannot consider fixed sites alone as supporting infrastructure. The supporting space infrastructure must include the ground segment, the space segment, and the user segment down to the "last tactical mile," and the warfighter on the ground. The space-supporting infrastructure must assess all of these segments/elements. The space infrastructure cannot be considered as fixed sites alone. The space infrastructure has to include the ground segment, the space segment and the user segment down to the "last tactical mile" and the warfighter on the ground. As part of this infrastructure, Objective Force units will have full spectrum space operations planning, directing and execution functions fully integrated as a core competency in the staff, as well as space operations embedded in the force structure to support the Joint Force. The Objective Force is an information centric force and space is about information—the collection and dissemination of information to assist the Joint Commander in making sense of the operational environment.

Currently, Army space force enhancement and space control missions are performed on a contingency basis. Army space support teams (ARSST) deploy to various Army component echelons, generally corps or army, and are under the tactical control (TACON) of the commander. Because ARRST personnel are not part of the supported command, they were often not involved in mission planning and did not have a full understanding of the command's operational objectives. The integration of space and space-based capabilities occurred during an operation and this often reduced the synergistic effects of space operations.

In 1997 the Army established space operations as a functional area and in June 2001 the first Space Operations Officers, FA 40, completed a formal qualification course. Previously space officers received their training either on-the-job or through joint institutional training. In the near-term, Space Operations Officers are being assigned to the numbered armies and corps as members of the G3 staff, US Army Space Command, and selected staff positions. This cadre of space experts brings space planning and the integration of force enhancement and space control to the force.

In the mid-term, successful integration of full spectrum space operations at the strategic, operational and tactical levels of war is critical to the Army's transformation. In the mid-term the Army will begin integrating space operations officers into special staff sections, space support elements, within the Army Command and Control elements. These special staff elements will integrate force enhancement and space control into each headquarters' plans or orders and provide the links necessary to bring the capabilities of national space assets to the tactical and operational commanders. Combined with these organizational changes, an aggressive educational program supported by published doctrine articulating the role, capabilities and employment of

space-based assets will embed space into the Army's education systems. All leaders regardless of branch or functional area will gain a basic understanding of space and warfighting.

In the far term, Objective Force organizations enabled by the advanced technologies of space systems will provide revolutionary increases in our tactical and operational capability. Space systems integrated into operational plans will enable units of action and employment to conduct simultaneous, non-contiguous, distributed operations. Space, as the key enabler to the Army, is critical to achieving the hallmarks of the Objective Force: developing situations out of contact; maneuvering to positions of advantage engaging enemy forces beyond the range of their weapons; destroying them with precision fires and maneuver; and tactically assaulting enemy capabilities or locations at times and places of our choosing. Objective Force organizations with a permanent staff of Space Operations Officers will ensure the seamless planning and execution of force enhancement and space control operations. In addition to the specialized training these space experts possess all officers will receive a fundamental knowledge of space operations and systems through the transformed officer education system. This combination of shared common knowledge and specialized space expertise will enable leaders to conduct rapid, intent centric operations.

1. Force Enhancement

a. Operational Maneuver from Strategic Distances

The Objective Force, in support of the JFC, will conduct rapid strategic response and maneuver across the full operational spectrum, from homeland security through operations other than war, and from major conflicts to strategic crisis/conflict.

Space-based ISR capabilities will most often constitute the first "eyes on target." From the first intelligence preparation of the battlespace (IPB) and final updates on APODs and SPODs to a deep look at support operations, space systems provide critical ISR products and targeting information. Enroute mission planning and rehearsal, command and control of distributed operations over extended distances, and reachback to out of theater forces require overhead (high altitude and space) communication assets.

The far term Objective Force inherent capabilities consist of lighter but highly lethal, mobile, and survivable formations that arrive in an operations area fully synchronized with other Joint Force elements, and ready to fight. In addition to advanced lift capabilities and pre-positioned assets, pre-deployed space assets speed deployment and lighten the load of deploying forces. Space systems assist achieving strategic responsiveness by providing complete real-time battlespace awareness, assured global communications, and the capabilities to counter adversary anti-access capabilities. These capabilities provide immediate global communications, timely and accurate surveillance, and enroute mission planning and rehearsal capabilities for deploying forces. In the far term, integrated computer network operations and space negation

capabilities will work together in countering adversary anti-access strategies and space ISR capabilities.

b. Early Entry Crisis Operations

Operational deployments to areas with limited forward-deployed forces, or in situations where an adversary achieves some success in denying access to US and friendly forces, may require forced entry operations followed by a seamless transition to offensive operations. Commanders require space-based communications and intelligence capabilities as they move from CONUS installations to the theater of operations. During the movement to the theater of operations, employment of counter-reconnaissance capabilities are critical to ensure friendly forces are free from observation by threat forces during the deployment process. Arrival in theater increases the Joint warfighter's reliance on space-based capabilities. Reach back for strategic C2, logistics support, data base query, precision strike support, and ISR support for efficient use of RSTA assets and deep operations will all depend on reliable space-based communications.

Inherent Objective Force capabilities demand real-time battlespace awareness and assured communications. Internetted, overhead (high altitude and space) communications, and ISR far term capabilities and the means to protect them are critical to provide the essential communications, timely and accurate surveillance, and enroute mission planning and rehearsal capabilities for deploying forces.

c. Decisive Operations

Space support extends from the strategic to the tactical level and strengthens the commander's confidence in the situational awareness and information superiority infrastructure that supports him. As a space–empowered force, the Objective Force will use overhead constellations of military and civilian space platforms for intelligence, communications, early warning, PNT, and WETM. The operational simultaneity, situational understanding, precise and tactically responsive ISR, and assured communications implicit in this concept rely heavily on mid- and far term overhead architectures, systems, and platforms. Objective Force operations in the Joint operations area (JOA) will place a premium on superior situational understanding as the key enabler to allow ground forces to operate simultaneously in a distributed, nonlinear fashion that masses effects not forces.

High altitude, space-based capabilities will significantly enhance simultaneous engagement and distributed operations. Comprehensive situational understanding and a COP throughout the force demand a far term range of capabilities. This range includes fully integrated, internetted, plug and play C4ISR architecture that includes ground, air, sea, and space systems and platforms.

In the near term, global PNT capabilities provided by the Global Positioning System (GPS) are our sole method of providing force-wide common location and timing essential for simultaneous, distributed operations. GPS provides the "common grid" for precision engagement and a mechanism for effective BLOS blue force tracking (BFT) to

land forces. Mid- and far term upgrades of the GPS system must include anti-jam and anti-spoof modes to safeguard this capability.

The Defense Support Program satellites in the near term and the mid-term fielding of Space-Based Infra-Red System (SBIRS) provide critical, time-sensitive, early warning. Data provided includes launch points and predicted trajectories. SBIRS also provides infrared information that will provide greater battlefield resolution. Far term capabilities provided by the Space-Based Radar (SBR) include moving target indications from space that will track adversary vehicles with highly accurate, digital terrain elevation data. This will provide the data necessary for precision attack of critical nodes. The near to far term capability of a direct downlink process will make timely, assured receipt of this and other information available to the appropriate level tactical commander where and when he needs it.

Joint simultaneous attacks against enemy decisive points and centers of gravity require the Objective Force to conduct simultaneous engagement for operational maneuver, vertical envelopment, and mobile strike operations throughout the Joint Operational Area. These operations require superior situational understanding and a COP. The capabilities will allow the Joint Force Commander to focus forces against critical enemy capabilities, real-time imagery to detect and locate identified decisive points, the real-time targeting data necessary for attack, and responsive BLOS communications for effective C2. The physical range and field of view limitations of terrestrial-based C4ISR systems mean that the tactical force will continue to rely on the enhanced mid- to far term capabilities provided by space and overhead platforms.

The Objective Force creates an operational tempo, achieved through continuous operations with no significant pauses, to overwhelm the adversary's ability to respond effectively. The Objective Force relies on continuous and immediate updates to situational awareness, a CROP across the force, and assured communications across the operational area. Overhead (high altitude and space) C4ISR platforms will provide much of this far term capability.

To provide the Objective Force commander with complete battlespace awareness, and enable The Army to provide dominant landpower support to the Joint Force Commander requires full integration of space and terrestrial architectures. The short timelines of a tactical battlespace, the cycle time required from tasking to dissemination and receipt of all-source require near real time, integrated products. Additionally, development of a mid- to far term capability to cross-cue intelligence and non-intelligence platforms will lead to more responsive and comprehensive targeting information.

d. Decisive Tactical Combat

Tactical success in close combat forms the basis for Army Objective Force decisive operations in support of the Joint Force Commander. A robust, space-based capability integrated with a seamless C4ISR structure is vital to this phase of the operation. National technical means (NTM), coupled with tactical surveillance, theater reconnaissance, and wide area surveillance, provide this robust capability to the Objective Force commander. Space-based, mid- to far term capabilities enable friendly

forces to see the enemy first, understand the threat's intent, and then attack. Space-based capabilities also reduce the theater footprint resulting from the employment of tactical surveillance and reconnaissance systems. Transformation to the Objective Force casts its primary mission of closing with and destroying the enemy in terms of a combined arms air-space-ground task force Unit of Engagement and Unit of Action. Mid- and far- term space capabilities enable a seamless ISR capability that influences shaping actions from the immediate objective area to objective areas extending beyond the reach of tactical ISR capabilities.

Objective Force units will utilize situationally aware combat Soldiers and revolutionary technologies that will provide overwhelming momentum to offensive operations. Our capability to see first, understand first, act first, and then finish decisively through fire and maneuver and tactical assault augmented with space-enhanced precision engagement weapons characterize Objective Force close combat operations. Space-based force enhancement capabilities are now, and in the future, increasingly significant contributors to our ability to see the environment first from standoff ranges, distribute information, and ensure freedom of maneuver through superior information dominance.

Developing the situation out of contact is a significant aspect of operations before directly engaging forces in battle. While out of contact, NTM and theater-wide area surveillance provide the "eyes" to see and understand the enemy situation. WETM capabilities provide understanding of the environment, and PNT facilitate deployment of Joint and Army standoff fires.

Once forces make contact, space-based capabilities continue to provide situational awareness. They facilitate adjustment by the air-space-ground task force to the changing situation during the fight. Superior knowledge enables the Joint Task Force to attack at the right place at the right time with overwhelming power.

The future adversaries' potential to exploit urban and complex terrain requires that the Objective Force sees, knows, and acts effectively in all four environmental domains: vertical, horizontal, interior, and subterranean. While an urban and complex environment may demand extensive manpower (dismounted), the Objective Force will apply capabilities and tactics to achieve rapid decision while discriminating between friend, foe, and noncombatants thus avoiding collateral damage. Essential near through far term force-enhancement space capabilities in this environment include BLOS communications, discrete imaging and targeting data, and continuous GPS coverage for force PNT.

2. Space Control

Space control plays a critical role in the preparations for decisive tactical combat. The elements of space control capabilities are surveillance, negation, protection, and prevention. In the mid and far term, we will continue to refine and upgrade those that currently operate. Denial, disruption, deception, degradation, and destruction all further categorize methods of space control negation. As technology advances, we will continue to refine all of these methods currently available in the near term.

The Army cannot overemphasize the contribution of space control to the Army's Objective Force, and ultimately to the JFC. The Objective Force will employ far more sophisticated space control capabilities to negate adversary benefit from valuable space derived and space reliant information. Electronic, kinetic, or directed energy means, and other capabilities under development, will degrade the adversary's military decision process. The inherent expectation of the reliance on space assets provides assured access to these capabilities across the full spectrum of operations and the protection of crucial points of vulnerability, most significantly ground segments/stations. The Objective Force must rely on far term Joint capabilities for assured access to space segments while providing protection of crucial ground segments/stations. Conversely, potential adversaries have similar space capabilities (particularly C4ISR capabilities) and a growing ability to interfere with US access and use of space capabilities. Lack of effective space control capabilities will place Joint and Army forces at risk in a future conflict. The Objective Force operational concept must address the emerging space control requirements for 21st century military operations.

Space control capabilities, in the far term, will provide a major contribution to uninterrupted, assured access to space-based capabilities while denying the enemy the same capability. A suite of space surveillance and negation systems will deny and disrupt adversary ISR and communications. Far term space control weapons protect the force from enemy space ISR and deny the use of space capabilities to our adversaries. This far term capability mitigates risk while providing the following benefits to the Army's Objective Force commander in support of the JFC:

- Protects against adversary space-based ISR during staging, embarkation, and debarkation in the theater of operations
- Denies adversaries capability to observe blue actions
- Denies adversaries command and control capability, which in turn
    - Reduces adversary responsiveness
    - Reduces adversary lethality
    - Reduces blue casualties and loss of equipment
    - Maintains friendly situational awareness advantage
- Provides in-theater situational awareness of red and gray satellites that could support adversary plans and operations (location, activity, surveillance
- Maintains element of surprise through superior assured access to ISR and communications
- Enhances blue and coalition force freedom of maneuver

3. Programs

The Army is tracking investment in several lines as part of the Space virtual Major Force Program (MFP) totaling $526M in FY03; and, $2,779M across the FYDP (03-07) based on PB03.

Annex F: Leveraging Information Technology and Innovative Concepts to Develop an Interoperable, Joint C4ISR Architecture and Capability that Includes a Tailorable Joint Operational Picture

Introduction

The Army believes that, in combat, no maxim is truer than "knowledge is power." The commander with the best knowledge (picture) of both friendly and enemy locations, strengths, and intentions commands a profound advantage over his adversary. Thus, attaining a seamlessly interoperable Joint C4ISR architecture, with the necessary space-based and terrestrial infrastructure, is the dominant enabler for Transformation.

Achieving and sustaining information superiority requires both Joint and multinational efforts. The Joint Chiefs of Staff define interoperability as, "The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces; and, to use the services so exchanged to enable them to operate effectively together." To accomplish interoperability, The Army has adopted an enterprise strategy that implements a sound, integrated, information technology architecture and Horizontal Technology Integration, incorporating a "Space to Mud" C4ISR approach. Incorporating compatible technologies, standardizing interfaces and components across the force, conducting experiments, and training achieves interoperability. The Army participates fully in these processes, as it will continue to do so throughout its Transformation to the Objective Force.

1. Establishing the Environment

Army Knowledge Management (AKM) is The Army strategy to transform itself into a network-centric, knowledge-based force and represents an integral part of Army Transformation. The AKM vision is, "A transformed Army, with agile capabilities and adaptive processes, powered by world class network-centric access to knowledge, systems, and services, interoperable with the Joint environment." To help achieve this vision, The Army is building the Army Enterprise Architecture (AEA), a comprehensive blueprint for information systems. The AEA is consistent with the Joint operational architecture currently under development for the GIG. The GIG is the Joint Technical Architecture that evolved from an early version of the Army's SIGINT Architecture.

To realize the vision of Army Knowledge Management, The Army has established the System of Systems Oversight Council (SOC) and the Unit Set Fielding (USF) management process. The plan includes a software blocking process for modernizing units by fielding fully integrated unit sets of equipment in support of The Army TCP. This strategy provides a building block approach to achieving C4ISR interoperability within the Army and in the Joint arena. In the long term, the Army expects this approach to support a similar DoD-wide synchronized fielding strategy.

The Linked Operations-Intelligence Centers Europe (LOCE) provides the theater's backbone for exchanging intelligence and operations data in near real time. For example, LOCE distributes the USCENTCOM Standing Joint Task Force air tasking order for Afghanistan operations to the fifteen participating NATO nations. All US and NATO forces currently employ LOCE worldwide as the principal means for secure communications interoperability.

2. Ensuring Interoperability

a. Joint Development and Testing

The Army requires that all its C4ISR systems meet Joint requirements. Consequently, the Army participates in the Joint Interoperability Test Center (JITC), the Joint interoperability certification testing, and the Joint Distributed Engineering Plant (JDEP). The latter represents a new OSD initiative to support developers, testers and war fighters in system of systems engineering, testing and operational assessments. The Army was an integral part of the JDEP proof of concept, a cross-Service four-system federation supporting the Single Integrated Air Picture (SIAP). The Army has also developed its own Joint C4ISR testing capabilities including the intermediate Joint Interoperability test bed (IJIT) at While Sands Missile Range; and, the Joint Virtual Battlespace (JVB), currently under development by The Army Test and Evaluation Command (ATEC.) The JVB can explicitly represent command, control, and communications in a network centric manner, a major FCS enabler.

Further, The Army participates in recurring Joint tests and demonstrations. When a Joint Air Operations Command (JAOC) deploys in support of a Joint exercise, the Army's Battlefield Coordination Detachment (BCD) links the Army's battle command systems into the JAOC network. These events include ten brigade rotations at the Joint Readiness Training Center (JRTC), All Service Combat Identification Evaluation Tests (ASCIETs), Joint warfighter Interoperability Demonstrations (JWIDs), Advance Warfighting Experiments (AWEs) (e.g., the September 2000 Joint Contingency Force AWE), and Roving Sands Exercises. Roving Sands 01 was particularly successful, melding the C4 elements, air defense artillery and aircraft of the Army, Navy, Marines, Air Force and multinational forces into a Joint integrated air defense system.

b. Multinational Development and Testing

The Army also continues to pursue interoperability with major allies and likely coalition partners through international standardization programs and cooperative development efforts.

- NATO's Artillery Systems Cooperative Activities Interoperability Program;
- The Germany-US Low Level Air Picture Interface program intended to improve short-range air defense systems' digital interoperability;
- The American, British, Canadian, and Australian Armies' (ABCA) Standardization Program's Coalition Interoperability Demonstration Borealis (CID-Borealis);

- The Multinational Digital Interoperability Exercise being planned by the Quadrilateral Army Communications and Information Systems Interoperability Group (QACISIG), with France, Germany, and the United Kingdom; and,

- The Multinational Interoperability Council (MIC), with Australia, Canada, France, Germany, and United Kingdom or EUCOM's Combined Endeavor series of communications interoperability exercises.

As the Army transforms, multinational exercises will form an essential element for addressing challenges to interoperability. For example, in 2002 ABCA will conduct a Coalition Interoperability Demonstration (CID) hosted by the Canadian Army focused on demonstrating communications and information systems interoperability. A reachback workshop will be included in ABCA's 2002 CID Borealis. The US Army will host the 2004 ABCA Exercise and will focus on command and control in a coalition environment.

3. Capabilities

The Army provides significant C4ISR capabilities to the Joint fight, and in turn leverages the integrated C4ISR capability of the Joint Force. The emphasis on interoperability will only increase. For example, the Statement of Required Capabilities for the Army's FCS states that an FCS combat unit will be a networked force interoperable with Joint and interagency systems and adaptable to allied, coalitions, and NGO systems. The Army broadly groups its C4ISR capabilities under the categories of Collaborative Command and Control, Robust End-to-End Communications, and Collaborative, Multi-Sensor, fully networked Intelligence, Surveillance, and Reconnaissance.

a. Collaborative C2

This capability includes providing a COP that supports situational awareness and understanding at all echelons across service and national boundaries, planning and rehearsing missions while enroute to the area of operations, and conducting C2 on the move.

The Army's selective modernization of the Legacy Force focuses on leveraging the power of information. The Army Battle Command System provides a common tactical picture from the platform level to the Corps, integrating both Army and Joint systems. In the future, individual Soldiers will access that same common tactical picture. In the near- and mid-term, The Army will continue improving the current ability to exchange ground picture information with the Joint COP.

The Interim and, to an even greater extent, the Objective Force will leverage the power of information to replace the requirements for mass and armored volume. The Army and the Marine Corps currently work together to develop the ground picture portion of the Family of Interoperable Operational Pictures (FIOP). In the long term, developing situations out of contact and maneuvering to positions of advantage will characterize Objective Force operations. Sharing information in near real time throughout the Joint and multinational force will provide the instrumental framework for our ability to see first, understand first, act first, and finish decisively. Web-centric C4ISR capabilities will link

together and knowledge-enable FCS-equipped units. Enroute mission planning and rehearsal will allow the Joint Force to "Act First" when conducting operational maneuver from strategic distances. This capability will allow a commander en route to an area of operation to receive operational data and intelligence in-flight, re-plan his mission based on new information, disseminate and rehearse mission changes among appropriate combat elements; and, finally, successfully execute the new mission. In the far term, the Army Objective Force will have C4ISR capabilities that enable continuous mission planning from alert through deployment to employment, supporting continuous mission planning, rehearsal, battle command, and the ability to integrate into gaining theater command during movement by air, land, or sea.

Similarly, the ability to command and control formations while on the move will enhance the Joint Force's ability to operate inside of an adversary's "decision cycle." The Interim and Legacy Forces, in the near- and mid-term, have limited ability to conduct command and control while on the move. Of course, commanders have always had the ability to command their formations while on the move. Nevertheless, the initial on-the-move capability will provide near real-time integrated inter- and intra-Service Situational Awareness information and C2 functionality. It will permit commanders to synchronize forces, achieve agility, and gain a "feel" of battle space. In the long term, Objective Force units will have embedded C4ISR capabilities obviating the need for stationary communications nodes and allowing continuous battlefield C2 on the move.

The Army is not only adapting its C4ISR capability to harness the full potential of information technology, but also adapting it to cope with the changing operational environment. The Army anticipates a non-linear, future battlefield that will include urban terrain, resulting in a widely dispersed force. Both friend-or-foe identification and blue force tracking capabilities will become increasingly more critical. In the near term, the Army is fielding improved friend-or-foe identification capabilities. The Army's Advanced Concepts Team has developed a complete architecture that addresses systems and alternatives. This will ultimately lead to the development and fielding of combat identification equipment. The equipment will enable all US and multinational Forces with the means to identify with certainty all targets in the battlespace for all combat mission areas. The Army will also field improved combat personnel recovery and mobile force tracking capabilities in support of blue force tracking.

b. Robust End-To-End Communications

The Army is developing a mobile and flexible wireless infrastructure for passing secure and non-secure voice, data, and video to ground commanders. This infostructure constitutes the Army's contribution to the GIG, offers a C4ISR tactical communications "intranet" integrating Joint, multinational, commercial and battlefield networks; supports airborne/space range extension; and, enables seamless reach to facilitate web-based logistics and reduced theater footprint. Achieving robust end-to-end communications requires that we overcome communications limitations caused by terrain, weather, disparate systems, range restrictions, and hostile activity. Future forces will require significant advances in low probability of detection/low probability of interception (LPD/LPI) technology to protect them from the vastly increased number of

communications nodes. These will include individual Soldiers, internetted sensors, unmanned aerial vehicles, and robotic platforms.

In the near- and mid-term, tactical network infrastructure will remain primarily a surface-based, two-dimensional architecture. Satellites and unmanned aerial vehicles (UAVs) will stitch together the networks of the four Services and our coalition partners. During this time, The Army expects to see an increasing presence of range extension and improved communication capabilities enabled by UAVs and (SATCOM).

In the near- and mid-term, the Army is modernizing installation communications capabilities to support reach, thus contributing to reducing in-theater logistics and medical footprints. This supports the Army Transformation goal of agility in support of the multinational force.

By the mid-term, significant fielding of information management, assurance, and distribution (IMAD) technologies will exist. As a result, The Army communication networking focus will become significantly Joint. Newer, more intelligent nodes/UAVs will support both IMAD and communications. The movement of some of the tactical backbone infrastructure to the airborne layer will significantly reduce the signal footprint and improve deployability. At the Division and Corps levels, the Army will modernize Army network management capabilities through technology insertion of next generation capabilities, developing and fielding the Joint Network Management System (JNMS). By the far-term, the space and airborne layers will provide the backbone infrastructure for Objective Force units, allowing deploying Objective Force units Joint interoperability as they roll off the plane or ship.

c. Collaborative, Multi-Sensor, Fully Networked ISR

In the near-term, the Army brings to the Joint Force an integrated, scalable, Joint Tactical Exploitation of Network Capabilities (TENCAP) capability, a Joint interface between national and tactical ISR systems, and analytical tools to support collaborative, multi-intelligence analysis.

In the mid-term, Army ISR will continue its migration toward Joint, multi-sensor platforms and integrated sensor processors. This move will increase Joint and Army ISR capabilities while reducing the Army's forward footprint. Multi-sensor platforms will create a ubiquitous, fully networked sensor grid with both manned and unmanned, ground and air surveillance and reconnaissance systems. They will provide a worldwide, self-deployable airborne RSTA system. The system will have the ability to quickly and accurately detect, identify, track and determine precision geo- and temporal locations of highly mobile targets.

The Army will make significant strides in the mid-term towards achieving Joint fusion of ISR data reported from multiple sources. This will make significant contributions toward overcoming the "information volume" problem that exceeds warfighter capabilities to develop the situational understanding that planning and acting within the adversary's decision cycle requires. ISR sensor data fusion will support the warfighting commander's battle management and information operations process. It will fuse

intelligence information to present a common enemy picture of the battlefield at all Army echelons, and at the Joint and national level. The Army's intelligence fusion system participates in the Joint Intelligence Surveillance and Reconnaissance initiative, Joint Intelligence Visualization Architecture, and the Community Integrated Collection Management Program.

Mid-term fielding of an improved ground station capability will provide the commander with maximum flexibility to satisfy ISR needs in a wide range of operational scenarios. It will task, receive, process, exploit, and disseminate national, theater, and tactical ISR sensor data. Additionally, it will provide present time-critical information and intelligence to the warfighter at tactical and Joint echelons. This mid-term ground station capability represents a critical component for an extended reach capability that leverages national technologies for tactical applications. Fully scalable and modular, it will have the capability of split-based, reach, and early-entry operations. It will integrate Army (across and between echelons) and Joint ISR information with non-traditional sources (e.g., gun camera video, counter-fire radar data, and attack aviation on-board sensor products).

Mid-term improvements in intelligence collection capabilities will support dominant situational awareness, battle management, precision targeting (for future deep strike weapons systems), and on-the-spot Battle Damage Assessment across the full spectrum of operations throughout the JTF Area of Responsibility.

Army intelligence will provide an instant picture of the battlespace using SIGINT and MASINT sensors to include the capability to detect, identify, and electronically attack selected emitters. The warfighter will have the capability to collect information on the move, at the halt, or in a dismounted configuration–information that will contribute to the Joint CROP.

In the far-term, Army Objective Force Intelligence will provide a globally focused, rapidly deployable, knowledge-based force. Expert personnel will harness the collaborative, analytical, communications, and presentation power of modern information technology to support leaders at the point of decision. It will operate within a national, Joint, and combined context and will leverage the capabilities and expertise of the US Intelligence Community, friends and allies, academia, media, and industry to provide commanders focused, "near-certain" knowledge. ISR capabilities in the Objective Force will allow commanders at all echelons to "reach" anywhere within the web to provide or obtain time-critical information that supports decision dominance. ISR sensors will detect asymmetric threats operating in complex terrain. Ultimately, sensors from all platforms will interweave information into a single accessible web of knowledge that will provide both a COP and targeting data from theater tactical forces to national agencies.

Objective Force ISR will create an interactive, protocol-driven network. This network will contain advanced multi-functional/domain sensors aboard space-based, manned/unmanned airborne and ground, and cyber-based platforms that operators will collectively monitor and analyze. Integrated system-of-systems with scaleable, on-board processors will use Aided Target Recognition (ATR) technology to identify rapidly,

evaluate, and present targets, as well as other information, to commanders and staffs. Adaptive reasoning tools that automatically collate and transform sensor data into information via accessible national-to-tactical common databases will support far-term ISR capabilities that will provide tailorable intelligence products to users at all levels.

4. Programs

The following major Army programs support this critical operational goal. The discussions below include for these programs over the FYDP.

a. Force XXI Battle Command, Brigade and Below (FBCB2). A suite of digitally interoperable applications and platform hardware, designed to provide on the move, real-time and near-real-time situational awareness and C2 information to combat, combat support, and combat service support leaders from Brigade to the platform and soldier level.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	136.0	123.3	108.8	127.8	109.9	605.8
PB 03 FYDP	123.5	155.5	100.2	104.9	90.4	574.6
Difference	12.5	32.2	8.6	22.9	19.5	31.2

b. Land Warrior. Land Warrior is the first program to integrate the infantry soldier's combat capabilities into a warfighting system optimized for close combat.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	77	89	105	121	128	520.0
PB 03 FYDP	77	147	153	177	178	732.0
Difference	0.0	58.0	48.0	56.0	50.0	212.0

c. Warfighter Information Network- Tactical (WIN-T). The next generation of tactical communications and information superiority architecture, WIN-T is the Army's Objective Force tactical digital communications network. WIN-Tactical provides simultaneous C2 on the move, wireless LANs, voice, data, and video capabilities.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 03 FYDP Requirement	61.0	44.2	124.7	174.6	131.2	535.6
PB 03 FYDP Funding	61.0	44.2	124.7	174.6	131.1	535.5
Difference	0.0	0.0	0.0	0.0	0.0	0.0

d. Joint Tactical Radio System (JTRS). Provides a software programmable multi-band/multi-mode, multichannel, modular, networked communications radio. Provides the data backbone for the lower Tactical Internet and is backwards compatible with legacy radios. Enabling communications capability for FCS and the Objective Force.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	261.0	260.0	246.0	208.0	108.0	1,083.0
PB 03 FYDP	204.0	207.0	204.0	212.0	172.0	999.0
Difference	57.0	53.0	42.0	4.0	64.0	84.0

e. Network Centric Information Warfare. A network-centric force with global access to assured information. Provides a "defense in-depth" to ensure information availability, integrity, confidentiality, authentication and non-repudiation. A key pillar in achieving "Information Superiority".

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	129.1	113.5	115.5	117.5	119.7	595.3
PB 03 FYDP	172.4	210.9	206.4	211.7	237.2	1,038.6
Difference	43.3	97.4	90.9	94.2	117.5	443.3

f. Joint Tactical Ground Station (JTAGS). Provides theater commanders with real time alerting, warning and cueing of tactical ballistic missile launches and other tactical events. Receives/processes/disseminates in-theater direct down-linked data from DSP satellites and follow-on SBIRS.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	3.1	2.7	3.7	7.1	3.1	19.7
PB 03 FYDP	2.9	2.5	8.0	27.7	39.4	80.5
Difference	0.2	0.2	4.3	20.7	36.3	60.8

g. Night Vision. Supports RDTE and procurement of Army "own the night" used for soldier systems. Current NV devices include: AN/PVS-7 and 14 night vision goggles; AN/AVS-6 aviator goggles; AN/PEQ-2 and AN/PAQ-4 infrared aiming light systems. Also sniper night sights, multifuctional laser, lightweight video recon system, and enhanced night vision goggles. NVGs are the pacing item for the individual soldier to own the night.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	68.4	76.6	88.8	86.9	87.5	408.3
PB 03 FYDP	114.5	120.8	192.8	211.0	247.7	886.8
Difference	46.1	44.2	104.0	124.1	160.2	478.5

h. Tech Demo, C3. Matures and demonstrates Command and Control (C2) and Communications technologies for FCS and other Objective Force Systems. Demonstrates distributed, mobile, secure wireless networks connecting Objective and legacy systems; battlefield situation understanding; synchronization of forces; correlation of intelligence data from airborne and space based sensors and reduced sensor-to-shooter precision strike timelines.

($M)	FY03	FY04	FY05	FY06	FY07	FY03-07
PB 02 FYDP	57.7	50.3	53.2	55.2	58.3	274.7
PB 03 FYDP	77.9	51.5	50.2	56.4	59.4	295.4
Difference	20.2	1.2	3.0	1.2	1.1	20.7

Annex G: Objective Force Characteristics

The seven force characteristics described in the Vision statement represent the ideal capabilities that are intended to define the Objective Force. Each characteristic is important in its own right, but it is their interaction and synergy within the Objective Force design that will enable us to dominate at every point on the spectrum of conflict.

1. Responsive

Responsiveness embodies time, distance, and sustained momentum. The capability to employ force, if it deters miscalculation by adversaries, provides a quality of deterrence all its own. The Army helps ensure critical access is available when needed through forward-deployed forces, forward positioned capabilities, peacetime security cooperation initiatives, and, when called, through force projection from the CONUS or any other location where needed capabilities reside. In addition, its full spectrum quality permits rapid actions in support of homeland security missions. Since both access and homeland security includes other elements of national power, leaders need expanded decision-making and leadership skills to operate seamlessly within interagency operations. The Objective Force's unprecedented level of responsiveness increases strategic options and may facilitate shutting crises down before they cross irreversible thresholds for a warfight. Organized into more deployable, smaller, but more capable formations, the Objective Force will exploit all military and commercial strategic lift to arrive in theater ready to fight, fully synchronized with other elements of the joint force. Advanced airlift and high speed, shallow draft sealift capabilities that reduce reliance on improved airfields and seaports and permit multiple entry points, even within austere theaters, afford a strategic advantage to the Nation by increasing operational options. Army wargaming suggests that such lift will introduce the greatest advantages for landpower projection and help close the gap between initial entry and follow-on forces. These new strategic platforms will accelerate force flow, complement use of prepositioned stocks, enable entry operations through multiple points, degrade the adversary's anti-access strategy, and permit the JFC to employ the Objective Force with greater flexibility. Coupled with some organic capability for self-deployment directly into the combat zone from operational distances, the Objective Force's strategic maneuver capability contributes directly to regional deterrence. Strategic responsiveness is further enhanced by the capability of the Objective Force to fight immediately upon arrival, compelling the adversary to abandon his plans and respond immediately.

2. Deployable

To be truly responsive, Army forces must be deployable and capable of rapidly concentrating combat power in an operational area. The Army goal is to deploy a brigade combat team anywhere in the world in 96 hours after liftoff, a division on the ground in 120 hours, and five divisions in theater in 30 days. This will drive system and capability parameters. Systems must be transportable, logistics must be focused and flexible, and a culture within The Army that accepts deployment readiness as a way of life must be sustained. The Army needs support from the other Services to achieve the levels of deployability required to provide these options to the National Command

Authorities. Objective Force units must be capable of en route mission planning and rehearsal, exercise of battle command, synchronization of combined arms, and integration into the gaining theater command during movement by air, land and sea. Objective Force units must be unburdened of significant deployment and sustainment tonnages, and must be deployable by a variety of lift platforms to include C130 profile aircraft, ultra fast shallow draft sealift, and advanced vertical and horizontal airlift.

In order to overcome an aggressor's anti-access capabilities, entry into areas of operations must be enabled without reliance on conventional Aerial Ports of Debarkation (APODS) and Sea Ports of Debarkation (SPODS) where denial efforts will be focused. Operational maneuver from strategic distances will require an Objective Force optimized for rapid commitment on short notice to operations of uncertain scope and duration in immature theaters.

In the face of enemy anti-access measures, the Objective Force will retain the ability to conduct forcible entry operations. Forcible entry will occur from both strategic and operational distances. Upon insertion of platforms, either in the assault or immediately following it, Objective Force units translate the strategic or operational initiative gained into tactical advantage with offensive operations against key enemy capabilities or vulnerabilities.

3. Agile

Army forces must possess the mental and physical agility to transition among the various types of operations, just as we have demonstrated the tactical warfighting agility to task organize on the move. Agile forces will be required to transition from stability or support operations to warfighting and back again. Agility is tied to initiative and speed. Agile formations make those transitions quickly because they are more mobile and able to adapt faster than the enemy, thereby denying it the initiative. As the Army creates a more rapidly deployable force structure, it must continue to grow leaders who are highly adaptive and mentally agile. Objective Force leaders will be schooled in operational art and science and must be masters at troop leading in dynamic operational environments - - the intellectual component to a more agile force. They must be able to develop mission type orders that enable decentralized small unit initiative, perform battle command of decisive combat operations, and negotiate effectively in missions requiring this skill. Leaders and units must have the agility to deal with the variety of conditions they will encounter on the non-contiguous, complex battlefield. They must be able to seamlessly transition from vertical maneuver, to mounted operations, to foot movement in any environment. Information technologies will enable agility. In over seven years of experimentation with C4ISR technologies, The Army has demonstrated that this area holds the greatest promise of delivering revolutionary advances in force effectiveness. Information superiority via a web-enhanced, knowledge-based common operating picture is key to this effort. This demands C4ISR systems that are vertically and horizontally layered and integrated from the strategic to the tactical level across all systems. Drawing information and tailored intelligence products, updated in near-real time, from a wide variety of automated and human sources provides a knowledge backbone that revolutionizes and expedites the decision-action cycle. This architecture

will provide the means for forces at all levels to achieve situational understanding, and establish, maintain, and distribute a common operational picture tailored to unit and mission. Improved situational understanding will enhance force protection and sustainment, allowing the force to preserve combat power for decisive outcomes at times and places of the commander's choosing. Extended-range, redundant communications networks will extend the commander's reach and ensure continuous connectivity through multiple pathways.

While emerging information technologies facilitate coordinating, fusing, sharing, and displaying relevant information, these functions remain very human dependant. The non-contiguous battlespace places increased emphasis on the initiative, agility, judgment, and tactical and technical competence of skilled leaders at all levels. Advanced information technologies enable the force, but are not a substitute for training to standard and aggressive leadership.

In order to achieve this level of agility, Objective Force units will be enhanced "learning organizations" with embedded capabilities to accept and employ periodic, information technology enhancements. Designs must be robust to preclude interruptions in information flow and to sustain situational dominance. This will include the capability to identify critical information requirements and assure delivery of that information. Accordingly, the Objective Force will use a system-of-systems approach (layered, multiple paths), coupled with flexible operating procedures, to provide the level of redundancy necessary for information assurance.

4. Versatile

Versatility describes the inherent capacity of Objective Force formations to dominate at any point of the spectrum of military operations. The Army will move from today's task organized combined arms formations to organic combined arms units in the Objective Force. These units incorporate combined arms capabilities with the cohesion and teamwork of organic units at the lowest tactical levels maximizing versatility, agility, and improving the capabilities for the close fight. These formations will be capable of adapting to changes of mission - - mastering transitions - - with minimal adjustment. Smaller elements at lower echelons will be designed to employ functions and capabilities that currently reside in higher echelons, e.g. combined arms battalions with today's brigade-like capability. The Objective Force will be designed for full spectrum success while optimized for major theater war. The force design means that formations will possess the inherent versatility to operate effectively anywhere on the spectrum of military operations without substantial augmentation to perform diverse missions within a single campaign. As technology produces the breakthroughs necessary for the Objective Force, distinctions between heavy and light forces will blur. Special purpose capabilities previously associated with today's heavy or light formations - - to include vertical maneuver capability - - are designed into Objective Force formations. These units will possess the lethality, speed and staying power associated with heavy forces and the agility, deployability, versatility, and close combat capability of today's light forces. While The Army will retain certain special purpose capabilities and units, the majority of the force will be combined arms and full spectrum capable.

Objective Force units will possess superior tactical mobility. Platforms will negotiate all surfaces, road, off-road, trails, water crossing, and narrow gaps. They will possess superior capability to detect presence and disposition of mines and booby traps and possess an in-stride mark and breach capability. Mounted units require the capability to conduct route reconnaissance with forward looking and off-road sensors to clear at greatly increased speeds (50+ kph). Objective Force Soldiers will be capable of movement with 40 pound fighting load in all terrain and weather conditions - - with an interest in getting the Soldiers' fighting load to 15 pounds.

Objective Forces will possess the organic capability to conduct tactical vertical envelopment and air assault in both independent actions and as complementary maneuver in support of committed ground forces. Executed rapidly, vertical maneuver provides positional advantage, achieves surprise, overcomes difficult terrain, exposes enemy capabilities to destruction throughout the JOA, and blocks, isolates, or otherwise dislocates enemy forces. Vertical maneuver psychologically dislocates the enemy, causing him to fight in multiple directions and develop plans to defend areas that he may have considered secure. Other ground elements may be committed simultaneously to support and exploit the psychological and positional advantage achieved through vertical maneuver.

Maximizing commonality of design and systems and building fixed organizations with discrete sets of capabilities will contribute to a modular construct that enables rapid force tailoring prior to deployment as well as during employment, increasing force versatility and operational flexibility. The Objective force will use a 'Train, Alert, Deploy' model, vice the 'Alert, Train, Deploy' method employed with today's specialized formations that must tailor force packages after alert.

The versatility of Objective Force elements will significantly reduce, but not eliminate, the need for commanders to alter the mix of forces or to introduce new forces for post-conflict stability operations. Objective Force Soldiers and leaders will need to perceive post-conflict operations as combat-ready tasks, equally important to the missions accomplished during combat operation. Seamless transition from combat to stability operations underscores the need for agility in the future force. Objective Force units will use collaborative, distributed decision aids. These aids will enable leaders to maintain uninterrupted situational understanding and enables their effective leadership during dynamically changing conditions anywhere on the battlefield whether stationary or on the move, mounted or dismounted.

5. Lethal

The elements of lethal combat power remain fires, maneuver, leadership, protection, and information. When the Objective Force deploys, every element in the warfighting formation will be capable of generating combat power and contributing decisively to the fight. Its lethality will exceed that of today's conventional heavy forces. Through technological improvements in weaponry and munitions, the Objective Force will have the capability to destroy enemy formations at longer ranges, with smaller calibers, greater precision, and more devastating target effects. Key enablers include organic

line of sight, beyond line of sight, and non line of sight fires. These fires will overmatch the enemy in all conditions and environments, and be based on one shot – one kill, disciplines and designs. New propellants and materials will permit smaller caliber penetrators, and, together with increased accuracy, reduce ammunition weight, opening new possibilities for system as well as unit agility. Embedded intelligence will enable selective engagement of those targets whose destruction creates the greatest effects on the enemy force.

As forces optimized for decentralized, non-contiguous operations, Objective Force elements will be employed in simultaneous operations distributed across the entire JOA in accordance with the Joint Force Commander's intent for the operational-level campaign. In contrast to the phased, attrition-based, linear operations of the past, this approach is focused on disrupting the integrity of the enemy's battle plan by exposing the entire enemy force to air/ground attack, rather than rolling his forces up sequentially. Non-contiguous operations will have a dramatic impact on the architecture of the battlefield and in the relationship between combat, combat support and combat service support formations. Superior situational understanding, based on advanced C4ISR capabilities embedded at all levels, enables ground commanders to operate non-linearly, bypassing what is less important or non-decisive, to focus operations against forces and capabilities most critical to the enemy's defense. Through simultaneous engagement with lethal and non-lethal means, the Objective Force will exploit and complement joint interdiction to directly attack the enemy's Center of Gravity, critical capabilities from which the enemy derives his freedom of action, physical strength, or will to fight. These focused operations throughout the Joint Operational Area (JOA) exploit enemy vulnerabilities to deprive the enemy of key requirements and capabilities essential to the integrity of his defense and staying power, further accelerating his collapse.

Through planned and coordinated cycling of available forces, Objective Force commanders will conduct continuous operations with few significant pauses, creating and controlling an operational tempo that overwhelms the enemy's ability to respond effectively. High operational tempo and continuous pressure will seriously hinder the enemy's ability to regroup, reconstitute capabilities, or reconfigure forces to support new plans. Continuous operations will require innovative sustainment concepts and capabilities, based on sharp reductions in sustainment demand, significant improvements in reliability, split-based operations, and refined procedures for accelerated throughput, battlefield distribution, and mission staging. Exploiting advanced situational understanding, fires, and Army and joint aviation, Objective Force units will conduct mobile strike operations at tactical and operational distances. Mobile strike operations combine ground-based fires, attack aviation, and ISR systems to mass effects without massing forces in order to deny the enemy freedom of maneuver, prevent reinforcement, support friendly maneuver, and destroy key enemy forces and capabilities (such as C2 nodes, air defense systems, and mobile long-range surface missiles and artillery). Manned and Unmanned Aerial Vehicles (UAVs) will improve situational understanding and function as sensors for mutually supporting long-range (Army and joint) fires. Man-in-the-loop Army aviation provides advantages throughout

the JOA for engaging fleeting targets, focusing terminal effects, assessing results, and controlling effects after munitions are in flight.

Ultimately, all Objective Force decisive operations are based on tactical success in close combat and imposing our will in stability operations. In combat, the capability of the Objective Force to seize and control key terrain and to close with and destroy enemy forces is critical. Close combat has one purpose-the defeat or destruction of enemy forces to resolve decisively the outcome of battles and engagements. In this sense, close combat tactical actions are the fundamental building blocks for operational success and strategic victory. In some joint campaigns, the decision will depend on the capability of the land force to integrate firepower, maneuver, and assault to win the close combat fight. In others, land forces may support a main effort by some other component. Objective Force units conduct decisive combat by denying the enemy any sanctuary and defeating him in detail through a series of rapid, violent actions.

Tactical engagement will be characterized by development of the situation out of contact and the integration of standoff fires, skillful maneuver, and close combat assault to achieve tactical decision simultaneously at multiple locations across the JOA. Objective Force tactical commands will direct the continuous integration of powerful sub-elements, moving along multiple, non-contiguous axes to objective areas, while engaging the adversary with organic, overmatching, and precise fires. The engagement culminates in enemy capitulation or destruction by fires or close combat assault.

The environment is growing more and more urban - - avoiding built-up areas is simply not possible. Future adversaries will exploit urban and complex terrain for sanctuary. Objective Force units must be extensively trained, properly equipped, and psychologically prepared for urban warfare. The Objective Force will use speed, precision, and violent action in urban raids against enemy decisive points. When this is not possible because determined opponents have entrenched themselves in urban or complex terrain, Objective Force units will isolate and systematically reduce enemy forces with precision fires and combined arms assault, while limiting collateral damage and non-combatant casualties.

6. Survivable

The Objective Force will take advantage of technologies that provide maximum protection at the individual Soldier level, on or off platforms. The agility of our formations combined with the common operating picture is critical to maximize survivability. Ground and air platforms will leverage the best combination of low observable, reduced electronic signature, ballistic protection, long-range acquisition, early discrete targeting, shoot first every time, and target destruction each time we pull a trigger. Objective Force survivability will be linked to its inherently offensive orientation, as well as its speed and lethality. By seizing the initiative and seeing, understanding, and acting first, the Objective Force will enhance its own survivability through action and its retention of the initiative.

Objective Force soldiers will be physically and psychologically prepared for non-contiguous warfare, fighting in small units separated from their higher headquarters or

sister units for days at a time. The Army will provide Soldiers the maximum protection at the individual level, whether that Soldier is on a platform or on the ground. The Soldier and platforms will leverage integration of lighter, more effective ballistic protection (composite materials) with active and passive protection systems to enhance survivability against kinetic energy weapons, and current and projected enemy lethal effects. Ground platforms will leverage the best combination of: low observable technologies, on-board immediate multi-spectral capabilities, long-range acquisition, early discrete targeting, shoot first every time, and target destruction each time we pull a trigger. Platforms will provide improved early warning and defeat of enemy ground and air launched conventional and smart weapons.

7. Sustainable

The Army will aggressively reduce its logistics footprint and replenishment demand. This means that the Objective Force will deploy fewer vehicles and leverage combat service support reach capabilities that allow commanders to reduce stockpiles in theater while relying on technology to provide sustained velocity management and real-time tracking of supplies and equipment. The Objective Force design parameters will seek to achieve maintenance efficiencies through more reliable systems and commonality across joint formations - - in chasses, repair parts, fuel, munitions and components. Through this process, The Army is changing the conduct of war in the way it transports, maintains, and sustains its people and materiel. Units will organically sustain themselves for 3 days of high tempo operations without replenishment from external sources in continuous combat in mid-to-high intensity conflict or be self-sustainable for up to days in low-end conflict and peacetime military engagement.

Objective Force units possess a system of potable water generation and replenishment at every echelon to minimize the need for special-purpose units and demands. FCS lethal effects reduce ammunition weight and cube to enable unit agility. In addition to a common design, Objective Force units will maximize commonality of platforms, ammunition, C4ISR, and components to reduce the sustainment load, and to simplify logistics management in today's organizations.

Commonality also contributes to simplification of other processes, such as deployment and training.

Annex H: The Army Transformation Campaign Plan

The Army Transformation Campaign Plan (TCP) is a mechanism for integrating and synchronizing all elements of the Army Vision. The TCP contains the level of detail required to synchronize and maximize the effectiveness and efficiency of Army-wide Transformation efforts. At the same time, the plan design allows maximum flexibility for innovation and initiative throughout The Army. The TCP will accomplish this by focusing our collective efforts on achieving a common goal, the Army's Transformation objective--a strategically responsive and dominant force at every point on the spectrum of operations.

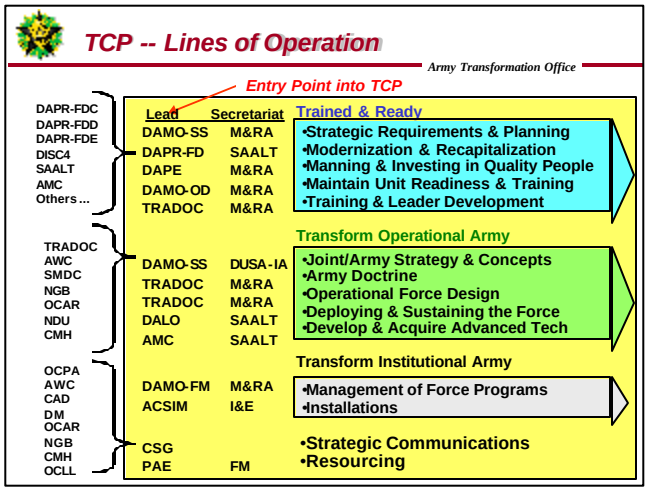

Figure 7: Lines of Operation

A conditions-based plan, the TCP has three major objectives: the Initial, Interim, and Objective Forces; and, four major decisions. Further, the TCP further lays out major subordinate objectives that serve to synchronize The Army's planning for Transformation. To achieve these objectives, the TCP has task-organized the Army Staff and its Field Operating Agencies (FOAs) into fourteen lines of operation (LOs), shown in Fig 7. The intent of the task organization is to facilitate innovative approaches to Transformation. It does not exist to facilitate execution of a centralized plan. Within their charter, LOs establish conditions and criteria necessary to achieve the major subordinate objectives subject to the Chief of Staff's approval.

Lines of Operation then translate these conditions and criteria into Intermediate Objectives, Milestones, and events necessary to achieve them. Intermediate Objectives are desired outcomes essential to achieving unity of effort within a line of operation. They may or may not equate to criteria that support the accomplishment of a given condition. Milestones are a singular event or status in time. Typically, they equate to steps required by OSD, Joint, or Army processes to accomplish a given objective, e.g., the validation of a requirements document. Events are activities, actions, meetings, products, or documents occurring within a line of operation. Lines of operation also

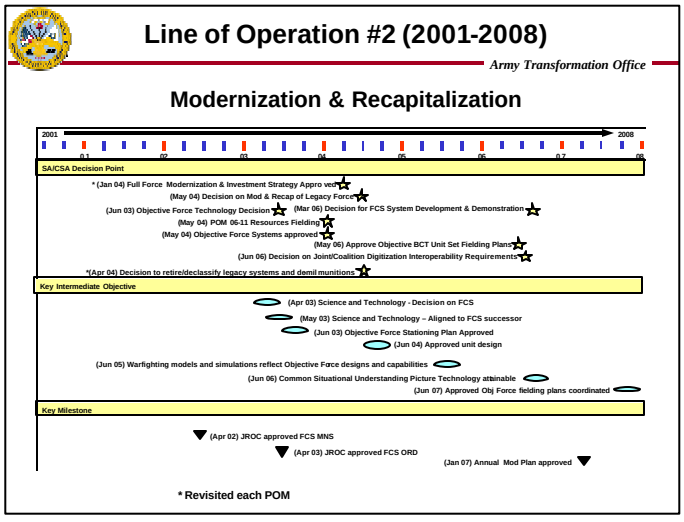

Figure 8: Conditions and Criteria

identify the decisions that the Chief of Staff and Secretary of the Army must make in order to accomplish their intermediate objectives.

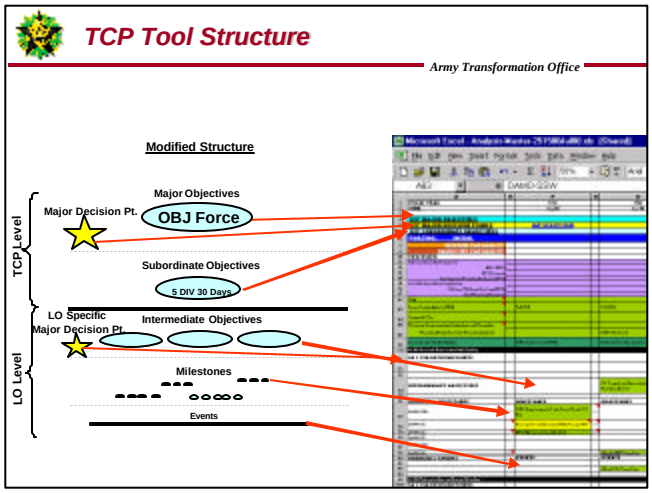

Figure 9: TCP Hierarchy: Major Objectives, Subordinate Objectives, Intermediate Objectives, Decisions, Milestones and Events

To assist the Army's senior leadership in managing the overall course of Transformation, a Synchronization Matrix incorporates these decisions, Intermediate Objectives, Milestones, and Events. The TCP Synchronization Matrix, a Microsoft EXCEL based program combined with a back-end database, tracks the progress of Army Transformation over time. Links between various entries also identify the steps necessary to attain a specific goal. Currently, the Synchronization Matrix contains over 6,200 entries and 7,600 links.

To ensure realization of this planning, The Army established a Battle Rhythm that allows The Army's senior leadership to review and direct progress on a regular basis. As depicted in Fig. 10, the CSA hosts Transformation Reviews, Requirements Review Councils, and Objective Force Task Force reviews that allow him to provide direction to the major Transformation aspects. At a subordinate level, the Vice Chief of Staff, Army (VCSA) hosts monthly synchronization meetings to manage The Army's execution of Transformation. The Director of the Objective Force Task Force also hosts monthly General Officer Steering Committees focused on developing the Objective Force. Weekly meetings of a Transformation Battle Staff composed of representatives from each LO, along with monthly offsites, support the senior leader battle rhythm.

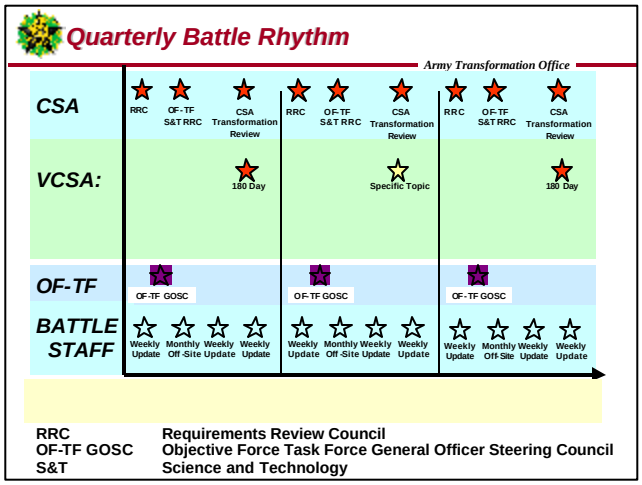

Figure 10: Transformation Battle Rhythm