



**The United States Army
Functional Concept for**

Protect

2015-2024

Version 1.0

30 April 2007



Foreword

*From the Director
U.S. Army Capabilities Integration Center*

This concept provides amplification to the Army's capstone and operating concepts in the protect functional area. It describes how the Modular Force will achieve full dimensional protection of its maneuver, maneuver support, and maneuver sustainment units, fixed, semi-fixed locations, along with information systems and infrastructure, during the 2015-2024 timeframe through advanced protection capabilities. When required for mission accomplishment, the future Modular Force will also provide protection-related capabilities to joint, interagency, and multi-national operations, which may include people, facilities, population centers, bases, and installations. Finally, this concept identifies protect capabilities and their potential solutions in doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF).

As this concept demonstrates, the Army has a well developed body of ideas regarding how it can better support joint force commanders to conduct successful campaigns in the future. However, it is equally clear that the Army cannot achieve its conceptual goals for improvement without an array of capabilities that must be developed by other Services and the larger joint community, particularly in the area(s) of fires, homeland defense, installation and activity protection, information, environmental operations, combating weapons of mass destruction, health services support, internment and resettlement operations, and personnel recovery. Thus, I strongly encourage the use of the *Protect* concept in our interactions with other Services and joint organizations, in the spirit of joint interdependence.

This concept is the outcome of a collaborative effort involving subject matter experts from throughout the Army, and the product of a detailed study of strategic guidance, current doctrine, and lessons learned. It assumes a future that includes complex situational environments; thinking, adaptive, and highly capable enemies, and Army operations that must be fully integrated into a joint, interagency, multi-national (JIM) framework. From these efforts, the concept offers new ideas for further examination so the future Modular Force will be able to defeat any adversary or control any situation across the range of military operations.

As with all concepts, the *Protect* concept is in continuous evolution. It will be refined and updated as new learning emerges from research, operational experience, joint and Army wargaming, experimentation, and combat development.



JOHN M. CURRAN
Lieutenant General, U.S. Army
Director, Army Capabilities
Integration Center

Executive Summary

Introduction

a. Protection is a process, a set of activities and capabilities by which the joint force (JF) protects people (combatant/non-combatant), assets, and information against the full spectrum of threats. Throughout history, the fighting force has been a primary target of the enemy. Protection of the fighting force is a critical objective in preserving combat power.

b. However, evolving threats will make it much more difficult to protect the JF in the future. It is incumbent on today's leadership to begin planning for tomorrow's force protection challenges.

Operational Problem

a. The future Modular Force will encounter thinking and adaptive adversaries that will strive for increasing lethality as the United States (U.S.) continues to pursue its global commitments as part of a JIM team. The enemy's attacks may be large scale destructive conventional operations or small unit operations with limited capabilities and goals. Often, these challenges will be aimed at the future Modular Force's perceived seams and gaps and employ dissimilar forces using niche capabilities. The future Modular Force will routinely operate in a JIM environment and amongst attempts to break down external support to U.S. forces which will require the incorporation of protection capabilities. Supporting friends, allies, and international groups, who lack advanced protection capabilities, will require the commitment of Modular Forces to assist in the completion of the assigned mission.

b. The future Modular Force will rely on knowledge management through network enabled battle command, to provide a robust common operating picture in support of self-synchronization and cooperative engagements, throughout its campaigns and operations. The interruption or destruction of the knowledge network will adversely affect the capabilities of the U.S. to maintain its agility, speed, and precise power.

Solution Synopsis

a. Future Modular Force maneuver, maneuver support, and maneuver sustainment units, fixed, semi-fixed locations, along with information systems and infrastructure, will all require advanced protection capabilities. When required for mission accomplishment, the future Modular Force will also provide protection related capabilities to interagency and multi-national partners which may include their people, facilities, population centers, bases, and installations. Future Modular Force protection must be comprehensive and provide modular layers of capabilities and capitalize joint interdependencies to create overlapping protection, resulting in 360° hemisphere coverage.

b. Soldier protection that is integrated, tailorable to the mission, and comprehensive is a critical capability set to provide the base layer even below the small unit. The future Modular Force must protect itself throughout all aspects of campaigns. Although traditional passive

elements of protection, such as increased armor, dispersion, and use of terrain, will still have utility on the future battlefield, passive protection should be used as a baseline from which active measures will be added. The future Modular Force must not rely on passive capabilities but should increasingly utilize active capabilities, to counter an adversary before threats are capable of effecting friendly operations. Active capabilities that detect a threat at the earliest moment and act against it are essential. Active capabilities will be found at the platform and unit level, and will protect in both static and mobile situations. This active protection may also be achieved, in part, through seizing the initiative, and conducting simultaneous, continuous, and distributed operations. These operations create a complex operational tempo and provide multiple dilemmas, which augment passive protection and ultimately overwhelm an adversary's ability to efficiently respond.

c. The future Modular Force decisive maneuver and intra-theater operational maneuver will offer protection via increased mobility, expanding the operational reach of Modular Forces to act against potential threats first, and destroying enemy capabilities by direct engagement of the enemy's decisive points and centers of gravity. The routine use of joint protection interdependencies, down to the tactical level, will provide overlapping capabilities. Lastly, the ability to apply imaginative solutions to potential situations may assist to eliminate an adversary's advantage.

Key Ideas

a. **Soldier Protection.** The Soldier will require protection from small arms, the effects of explosives and fragments, directed energy, and nonlethal weapons. Capabilities must keep the Soldier mobile and maintain physical flexibility based on the Soldier's tactical mission, in all types of terrain and provide protection in all climatic and chemical, biological, radiological, and nuclear (CBRN) environments.

b. **Platform Protection.** Platforms must be light-weight and mobile in all environmental conditions and possess organic protection against lethal and nonlethal threats. They will use light-weight, self-healing, and reactive composite material and integrated active protection measures.

c. **Unit Protection.** Unit protection includes Soldier and platform protection integrated with knowledge, command and control (C2), and response capabilities. Unit protection will utilize active capabilities against lethal and nonlethal threats. A unit will additionally achieve protection through offensive operations using mobility, knowledge superiority, and precision engagement, defeating an adversary before they can attack, and advantageously posturing friendly forces for decisive operations.

d. **Fixed, Semi-fixed, and Mobile Protection.** Protection capabilities must be effective in fixed, semi-fixed, and mobile environments, and during maneuver operations. Augmentation of the future Modular Force with joint protection interdependencies will provide comprehensive lethal and nonlethal layered protection during these operations.

e. Information Protection. The wide array of electronic communications, C2 systems, and intelligence sensors must be protected from electronic warfare and cyber threats. The knowledge based future Modular Force must protect information capabilities against intrusion and destructive attacks. Information protection will require joint interdependencies to protect all system nodes on the ground, in the air, at sea, and in space.

f. Active Protection. Active protection includes preemptive actions taken to support future operations and will utilize integrated capabilities to provide proactive solutions to detect and act against threats.

(1) *Preemptive Action.* Preemptive actions will inherently utilize offensive capabilities. Preemptive actions will identify and defeat threats by the employment of lethal and nonlethal capabilities prior to friendly operations being affected.

(2) *Future Integrated Capabilities.* Protection capabilities must be integrated and seamlessly operate with each other. Integration of defense systems must include networked C2, communications, computers, and lethal and nonlethal systems. Automated systems, improved sensors, and robotics are examples of some future integrated capabilities that will provide future active protection.

g. Multi-Partner Protection. This includes the integration of protection to JFs and JIM partners.

(1) *Joint Protection.* Joint protection utilizes interdependencies for air and missile defense (AMD), homeland defenses, defense of installations, and information protection. Within the context of this document joint protection interdependencies will also address: environmental considerations, combating weapons of mass destruction, health services support, and personnel recovery.

(2) *Interagency Protection.* Interagency protection consists of protecting the domestic civil population and infrastructure from aggression and attacks. It must also protect non-government and government personnel that support future Modular Force operations.

(3) *Multi-national Protection.* Multi-national protection consists of protecting foreign personnel and their infrastructure. It also consists of the integration of coalition and U.S. military interdependencies and supports the training of friendly protection for personnel and units.

Department of the Army
Headquarters, United States Army
Training and Doctrine Command
Fort Monroe, Virginia 23651-1046

TRADOC Pamphlet 525-3-5

30 April 2007

Military Operations

THE UNITED STATES ARMY FUNCTIONAL CONCEPT FOR PROTECT 2015 - 2024

History. This publication is a new United States Army Training and Doctrine Command (TRADOC) Pamphlet developed as part of the Army Concept Strategy for the future Modular Force.

Summary. TRADOC Pamphlet (Pam) 525-3-5, *The United States Army Functional Concept for Protect 2015–2024*, is the overarching conceptual visualization of how the Army future Modular Force will execute the protect function during joint operations to achieve full spectrum dominance across the range of military operations. The ideas presented here are fully integrated within the evolving context of our estimates of the future operating environment, joint and Army strategic guidance, and the joint framework.

Applicability. This concept applies to all Department of the Army (DA) services, agencies, and activities involved in the future modular force. It functions as the conceptual basis for developing required solution sets related to the future Modular Force protect function within the domains of doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF).

Proponent and exception authority. The proponent of this pamphlet is the Director, Army Capabilities Integration Center, Concept Development and Experimentation Directorate, Fort Monroe, VA 23651-1046.

Suggested Improvements. Users are invited to send comments and suggested improvements on Department of the Army Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, TRADOC (ATFC-ED), Fort Monroe, Virginia 23651-1046. Suggested improvements may also be submitted using DA Form 1045 (Army Ideas for Excellence Program Proposal).

Distribution. This publication is only available on the TRADOC Homepage at <http://www.tradoc.army.mil/tpubs/pamndx.htm>.

Table of Contents

	paragraph	page
Foreword		i
Executive Summary		ii
Chapter 1		
Introduction		
Purpose	1-1	4
Scope	1-2	4
Conceptual Foundation	1-3	4
Limitations	1-4	5
Chapter 2		
The Future Operational Environment		
General	2-1	5
Protection Considerations	2-2	7
Conclusions	2-3	8
Chapter 3		
The Central Idea: Protection		
General	3-1	8
Operational Problem	3-2	9
Solution Synopsis	3-3	9
Key Ideas	3-4	11
Chapter 4		
The Future Modular Force in the Joint Campaign: Protect		
Introduction	4-1	24
Shape	4-2	24
Deter	4-3	25
Seize the Initiative	4-4	25
Dominate	4-5	26
Stabilize	4-6	27
Enable Civil Authorities	4-7	28
Chapter 5		
Future Capabilities and Their Solutions in DOTMLPF		
Introduction	5-1	28
Soldier Protection	5-2	28
Platform Protection Capabilities	5-3	32
Unit Protection	5-4	34
Fixed, Semi-fixed and Mobile Protection	5-5	41
Information Protection	5-6	45
Active Protection	5-7	47
Multi-Partner Protection	5-8	50

Contents cont.

	paragraph	page
Chapter 6		
Conclusion		53
Appendixes		
A. References		55
B. Assumptions		57
Glossary		59

Chapter 1 Introduction

1-1. Purpose

a. The purpose of TRADOC Pam 525-3-5, *United States Army Functional Concept for Protect 2015-2024*, is to shape the Army's continuing campaign of learning. It also provides information for the refinement and development of elements of wargames and experimentation that support the examination of protection. Ideas presented here are the result of years of research, wargaming, experimentation, and operational lessons learned by the Army, other Services, and the joint community. These concepts are far from final, yet are a start point for a dynamic, professional dialogue on how best to meet the needs of the Nation together with partners in the defense community. As the Army tests these ideas, even to the point of failure, we expect them to evolve.

b. The future Modular Force protects people (both combatant and non-combatant), assets, and information within a wide variety of environments. Therefore, the future Modular Force must develop comprehensive protection to ensure mission success, whether in peace or war, in a domestic or foreign setting, and for our citizens, friends and allies. The *Protect* concept is part of the ongoing process of preparing for future protection challenges the Modular Force will face.

1-2. Scope

a. This concept addresses the function of protection for the future Modular Force during the 2015-2024 timeframe. The future Modular Force will operate across the full range of military operations from major combat operations to domestic activities.

b. The *Protect* concept addresses capabilities required at the strategic, operational, and tactical levels of operations. It describes how the Army will accomplish its required missions via full dimensional protection through the integration of protection capabilities for Soldiers, platforms, units, fixed, semi-fixed, and mobile environments, and information, emphasizing the use of active protection measures, and during joint, interagency, and multi-national (JIM) operations.

1-3. Conceptual Foundation

a. The *Protect* concept directly supports the *Capstone Concept for Joint Operations*, the *Joint Operations Concepts* family of concepts, the *Protection Joint Functional Concept*, and higher level strategic guidance including the Strategic Planning Guidance, Army Strategic Planning Guidance, and Joint and Army Transformation Roadmaps. It also supports the Army capstone, two maneuver concepts, *Tactical* and *Operational*, and the five functional concepts of *See*, *Battle Command*, *Strike*, *Move* and *Sustain*.

b. The *Protect* concept, along with the five other Army functional concepts, describe in detail how the future Modular Force will achieve the tenets articulated in the Army capstone concept and associated maneuver concepts. Furthermore, all six functional concepts are

inexorably interrelated, the key ideas of the *Protect* concept allowing for preservation of capabilities within the other five.

1-4. Limitations

a. In many cases the future Modular Force may operate in an environment that does not allow the full use of all of its capabilities. Combat operations in friendly nations or in politically sensitive situations may dictate restriction. Risk analysis must be preformed to balance the ability to protect, while operating within the limit of these restrictions.

b. The rules of engagement for use of force are different under different circumstances, especially when the operations are conducted on domestic soil. Within a domestic environment, federal laws, regulations, and policies prohibit Title 10 armed forces from conducting law enforcement missions, except under narrowly defined exceptions.¹ However, the President may use military forces at any time to defend the Nation from external attack. When civil authorities request military support to aid in local and regional emergencies, such as hurricanes and floods, Department of Defense (DOD) considers each request to ensure consistency with law, policy, and other guidelines.

c. Adherence to international laws and treaties by definition limits the range of possible actions. Treaties for the treatment of combatant and non-combatants provide a framework for the use of lethal and nonlethal capabilities. When possible, local customs and religious laws should also be followed.

d. In the case of foreign operations, the standard DOD rules of engagement are applicable, as modified by local commanders. Commanders will follow these procedures as set forth in the mission's execution and subsequent orders.

Chapter 2 The Joint Operational Environment

2-1. General

a. Emerging cultural, religious, ethnic, political, and economic realities will greatly complicate the future geopolitical environment (see fig 2-1). The resulting mix of global strategic, operational, and tactical issues transcends borders and involves opponents with worldwide connections that will present a demanding combination of challenges and dilemmas for the United States (U.S.). Security challenges will be more varied and unpredictable and the range of operational settings within the spectrum of conflict considerably more complex, driving an expectation that U.S. military assistance in civil support operations and stability operations

¹ The Insurrection Act of 1807 is the set of laws that govern the President of the United States of America's ability to deploy troops within the U.S. to put down lawlessness, insurrection and rebellion. The laws are chiefly contained in 10 U.S.C. § 331 - 10 U.S.C. § 335. The general aim is to limit Presidential power as much as possible, relying on state and local governments for initial response in the event of insurrection. Coupled with the Posse Comitatus Act, Presidential powers for law enforcement are limited and delayed.

will continue to rise, and that execution of these operations will inevitably take place in increasingly urban operations. The future Modular Force will encounter unprecedented complexities in physical terrain (especially urban areas), demographics, and informational environments. The allegiances of many entities within the operational environment will be difficult to determine. While some may clearly be neutral, others will be “gray,” opposing certain U.S. efforts while supporting others. Strategic deployments to areas of conflict will involve long logistical trails and the need to operate in regions with poor infrastructures. U.S. resources could be extended beyond the historic bounds of the task, and the range of military operations in those settings will be much wider than in the recent past.



Figure 2-1. The Joint Operational Environment

b. The National Defense Strategy and the *Capstone Concept for Joint Operations* postulate four primary security challenges for the future: traditional, irregular, catastrophic, and disruptive. *Traditional* (conventional) operations conducted within a state-on-state framework will continue to be relevant in the future environment. Regional aggressors will continue to modernize conventional forces and invest in capabilities that will enable them to dominate their neighbors. *Irregular* (unconventional) warfare may be conducted as the principle choice of adversaries who are overmatched in size or military technologies, or these kinds of operations may be combined with conventional capabilities to present an even more complex threat. *Catastrophic* challenges involve the acquisition, possession, and use of weapons of mass destruction (WMD). Adversaries seek such capabilities to dominate their regions, deter external intervention, or both. *Disruptive* challenges may occur through the employment of breakthrough technologies to negate existing U.S. advantages in key operational domains.

c. The most dangerous future adversaries will combine capabilities in all four challenges in creative ways, adapting them before and during the course of a conflict to frustrate U.S. military action. Opponents will attempt to use these capabilities to exploit perceived vulnerabilities, especially our dependence on networked command and intelligence, surveillance and reconnaissance. Opponents will also attack America's relationships with host and supporting nations, the media, commercial interests, and multi-national or interagency partners. U.S. development of the intellectual capital that will power a culture of innovation and adaptability potentially represents the most effective response to combinations of threats that cannot be predicted.

d. Additionally, the future Modular Force will face increasing complexity in its own operations. Given the expectations outlined above, strategic and joint guidance unequivocally establishes full spectrum dominance, the defeat of any adversary or control of any situation across the range of military operations (ROMO), as the overarching goal of joint transformation and JF development. Thus, it is imperative that the future JF and the Army are fully prepared to be effective across the spectrum of conflict and in the conduct of full spectrum operations throughout the course of a future campaign. The future Modular Force will fight as a part of a networked JF, integrated at every level, and interdependent in the joint areas of battle command, force projection, AMD, sustainment, and fires. Exploiting the full potential of tomorrow's technical capabilities will require an unprecedented breadth and depth of technical and tactical skill, individual and organizational flexibility, and personal initiative and creativity pitted against thinking, adapting adversaries.

e. Speed, simultaneity, distribution, and the ability to conduct multidimensional, continuous operations over extended distances will be mandatory to gain the initiative and allow for ultimate success. As future adversaries gain additional capabilities to directly threaten U.S. territory, U.S. military forces will become increasingly involved in homeland security in addition to executing challenging missions abroad. The future Modular Force must also fully integrate its operations with its interagency and multi-national partners, exploiting the strengths that those partners provide while minimizing any limitations and vulnerabilities.

2-2. Protection Considerations

a. Each of the four security challenges offers unique protection considerations. *Traditional* operations require protection against a wide array of high-tech weapon systems and capabilities that can be obtained or produced by a nation state. These will cut across land, air, sea, space, and information domains. Often, these will require the largest commitment of friendly resources to provide a comprehensive level of protection.

b. *Irregular* operations may use low-tech methods to challenge U.S. and friendly forces. Lacking a technological and financial base that can rival nation state resources, time proven and simple systems, combined with limited conventional weapons will require broad-spectrum protection capabilities. An irregular adversary may develop niche capabilities that may focus on known or perceived vulnerability in friendly protection systems.

c. *Catastrophic* operations offer the greatest risk against friendly forces and that of the homeland. The use of WMD may cause great loss of life and interrupt the daily lives of the country. This portion of protection requires a proactive effort to stop proliferation of WMD and, if necessary, its elimination before it can be used.

d. *Disruptive* operations will key into a system, or group of systems, that will interfere with routine operations of the military or civilian sector. Information capabilities present one of the greatest vulnerabilities since they may be attacked and disabled by remote access lethal and nonlethal means. The protection of information, as well as, the communication nodes on land, in the air, or in space, is critical to future military operations.

2-3. Conclusions

a. Friendly and enemy forces operate in a given JIM operational environment that consists of weather, terrain, information, socioeconomic factors, infrastructure, host/supporting governments, non-combatants, and other factors. These elements do not exist in isolation; they influence each other to define the environment. As friendly and enemy forces plan and execute military operations they both attempt to take maximum advantage of the operational environment. Military operations have both positive and negative impacts on the operational environment, causing both friendly and enemy forces to reevaluate their operational settings. The result is a complex, fluid and uncertain battlefield.

b. The future Modular Force must be able to protect itself, coalition members, and allies from traditional and irregular, disruptive, and catastrophic threats. This may range from sophisticated nation state capabilities like space-based systems, ballistic missiles, and large scale armored formations to lightly armed small unit insurgents, and a mix of capabilities in between. Special interest must be placed on protecting against catastrophic WMD threats. Although WMD threats tend to be less likely than traditional or irregular challenges, their effects on forces, the homeland, and allies can be traumatic and long lasting. Lastly, as greater information reliance is required, transmission nodes, hardware, and actual data must be effectively protected to enable mission success.

Chapter 3

The Central Idea: Protection

3-1. General

Protection is a process, a set of activities and capabilities by which the JF protects people (combatant/non-combatant), assets, and information against the full spectrum of threats. The use of protection preserves the fighting potential of a force so the commander can apply maximum force at the decisive time and place.

3-2. Operational Problem

a. The future Modular Force will encounter thinking and adaptive adversaries that will strive for increasing lethality as the U.S. continues to pursue its global commitments as part of a JIM

team. The enemy's attacks may be large scale destructive conventional operations or small unit operations with limited capabilities and goals. Often, these challenges will be aimed at the future Modular Force's perceived seams and gaps and employ dissimilar forces using niche capabilities. Since the future Modular Force will routinely operate in a JIM environment, there will also be attempts to break down external support to U.S. forces by attacking those who support or fight with U.S. forces.

b. To complicate matters, supporting friends, allies, and international groups will lack advanced protection capabilities, requiring the security assistance of Modular Forces to protect them in furtherance of mission success. Further, the future Modular Force will rely greatly on knowledge management through network enabled battle command to provide a robust common operating picture in support of self-synchronization and cooperative engagements throughout its campaigns and operations. The interruption or destruction of the knowledge network will adversely affect the capabilities of the U.S. to maintain its agility, speed, and precise power.

3-3. Solution Synopsis

a. Future Modular Force maneuver, maneuver support, and maneuver sustainment units, fixed, semi-fixed locations, along with information systems and infrastructure, will require advanced protection capabilities. When required for mission accomplishment, the future Modular Force will also provide protection related capabilities to JIM partners, which may include people, facilities, population centers, bases, and installations. Future Modular Force protection must be comprehensive and provide modular layers of capabilities and capitalize joint interdependencies to create overlapping protection, resulting in 360° hemisphere coverage.

b. Soldier protection that is integrated, tailorable to the mission and comprehensive is a critical capability set to provide the base layer even below the small unit. The future Modular Force must protect itself throughout all aspects of campaigns. Although traditional passive elements of protection, such as increased armor, dispersion, and use of terrain, will still have utility on the future battlefield, passive protection should be used as a baseline from which active measures will be added. The future Modular Force must not rely on passive capabilities, and should increasingly utilize active capabilities to counter an adversary before threats are capable of effecting friendly operations. Active capabilities used to detect a threat at the earliest moment and act against it are essential.

c. Active capabilities will be found at the platform and unit level and will protect in both static and mobile situations. Active protection may also be achieved, in part, through seizing the initiative, and conducting simultaneous, continuous, and distributed operations. These operations create a complex operational tempo and providing multiple dilemmas, which augment passive protection and ultimately overwhelm an adversary's ability to efficiently respond. Future Modular Force decisive maneuver and intratheater operational maneuver will offer protection via increased mobility, expanding the operational reach of Modular Forces to act against potential threats first, and destroying enemy capabilities by direct engagement of the enemy's decisive points and centers of gravity. The routine use of joint protection interdependencies, down to the tactical level, will provide overlapping capabilities. Lastly, the

ability to apply imaginative solutions to potential situations may assist to eliminate an adversary's advantage.

d. To accomplish the solution to protection, the future Modular Force will apply the following key ideas.

(1) **Soldier Protection.** The Soldier will require protection from small arms, the effects of explosives and fragments, directed energy, and nonlethal weapons. Capabilities must keep the Soldier mobile and maintain physical flexibility based on the Soldier's tactical mission, in all types of terrain and provide protection in all climatic and chemical, biological, radiological, and nuclear (CBRN) environments.

(2) **Platform Protection.** Platforms must be light-weight and mobile in all environmental conditions and possess organic protection against lethal and nonlethal threats. They will use light-weight, self-healing, and reactive composite material and, integrated active protection measures.

(3) **Unit Protection.** Unit protection includes Soldier and platform protection integrated with knowledge, command and control (C2), and response capabilities. Unit protection will utilize active capabilities against lethal and nonlethal threats. A unit will additionally achieve protection through offensive operations using mobility, knowledge superiority, and precision engagement, defeating an adversary before they can attack, and advantageously posturing friendly forces for decisive operations.

(4) **Fixed, Semi-fixed, and Mobile Protection.** Protection capabilities must be effective in fixed, semi-fixed, and mobile environments, and during maneuver operations. Augmentation of Army Modular Forces with joint protection interdependencies will provide comprehensive lethal and nonlethal layered protection during these operations.

(5) **Information Protection.** The wide array of electronic communications, C2 systems, and intelligence sensors must be protected from electronic warfare and cyber threats. The knowledge based future Modular Force must protect information capabilities against intrusion and destructive attacks. Information protection will require joint interdependencies to protect all system nodes on the ground, in the air, at sea, and in space.

(6) **Active Protection.** Active protection includes preemptive actions taken to support future operations and will utilize integrated capabilities to provide proactive solutions to detect and act against threats.

(a) *Preemptive Action.* Preemptive actions will inherently utilize offensive capabilities. Preemptive actions will identify and defeat threats by the employment of lethal and nonlethal capabilities prior to friendly operations being affected.

(b) *Future Capabilities.* Protection capabilities must be integrated and seamlessly operate with each other. Integration of defense systems must include networked C2, communications, computers, and lethal and nonlethal systems. Automated systems, improved

sensors, and robotics, are examples of some future integrated capabilities that will provide future active protection.

(7) **Multi-Partner Protection.** This includes the integration of protection to JFs, interagency operations, and multi-national partners.

(a) *Joint Protection.* Joint protection utilizes interdependencies for AMD, homeland defenses, defense of installations, and information protection. Within the context of this document joint protection interdependencies will also address environmental considerations, combating weapons of mass destruction, health services support, and personnel recovery.

(b) *Interagency Protection.* Interagency protection consists of protecting the domestic civil population and infrastructure from aggression and attacks. It must also protect non-government and government personnel that support future Modular Force operations.

(c) *Multi-national Protection.* Multi-national protection consists of protecting foreign personnel and their infrastructure. It also consists of the integration of coalition and U.S. military interdependencies and supports the training of friendly protection personnel and units.

3-4. Key Ideas

a. The protection of people, assets, and information is a requirement across the ROMO. Full dimension protection will be achieved through the employment of Soldier, platform, unit, and information capabilities in fixed, semi-fixed, and mobile environments. These capabilities will require active protection solutions, such as improved sensor capabilities, automatic solutions, and robotic capabilities. Full dimension protection will be achieved through multi-partner protection, which includes JIM protection. On the ever increasingly lethal battlefield the need for combat identification will grow. Using situational awareness combined with target identification will increase combat effectiveness and reduce fratricide. This will require training, simulations, doctrine, marking systems, and tracking systems.

b. Protection capabilities will be achieved by utilizing the tasks, *detect, assess, decide, act, and recover*, and provide a framework to link the required capabilities. These tasks are not always executed in a linear process. Rather, tasks are overlapping, and at times follow a natural and ordered pattern of execution, which may require near simultaneous execution, whereas a force may always be detecting, assessing and deciding, and taking action only when necessary.

(1) *Detect.* Detect includes an ability to sense the full range of friendly and hostile air, ground, chemical, biological, radiological, nuclear, and explosive incidents (CBRNE), electronic and intelligence activities to provide real time situational awareness enabling 360° hemispherical protection. In order to detect, military forces must collect timely, unambiguous, and accurate data on adversary capabilities and actions planned or employed against friendly personnel, assets, or information.

(2) *Assess.* Assess includes the ability to recognize, classify, and identify data and information upon detection to correctly formulate procedures and drive courses of action (COA),

enabling the ability to decide. Protection assessment will include the ability to share friendly and adversary information relevant to the operational environment, in order to facilitate situational understanding. The objective is to enter an opponent's decision cycle, decipher their plans, warn friendly units, and develop COA enabling friendly forces to deny adversary plans. When decisions are made and actions are taken, the action must then be evaluated for its effectiveness. If successful, no further action is required. However, if the desired end state of the action has not been achieved, the tasks of decide and act are resumed and executed, until a desired outcome is achieved.

(3) *Decide*. Decide is the ability to reach an appropriate judgment after planning and analyzing COA. The decide function also includes the ability to task, monitor, and change an action after a decision has been made.

(4) *Act*. Act includes the capability to execute the sub-tasks of active and passive measures to protect the force, and may include both offensive and defensive operations. The application of active and passive measures to resist adversary plans and actions directed against friendly personnel, assets, and information. The utilization of the act task and its related protection capabilities enable a commander to preserve operational capabilities via the improved protection of personnel, assets, and information. These measures can be proactive or reactive, and include the ability to execute warning of both friendly and enemy actions.

(5) *Recover*. The ability to recover includes actions taken during or after an event to restore, in a minimum amount of time, all protection capabilities that protect personnel, assets, and information. The successful execution of the recovery of military capabilities is vital to a commander's operation and, when directed, may include recovery support to interagency and multi-national partners, domestic and foreign civilians, and their infrastructure.

c. Key Idea #1: Soldier Protection

(1) The Soldier is the cornerstone on which all other protection capabilities must be built. Soldiers must develop intelligent decisionmaking abilities through training and education, which innately steer them away from problems and increase their ability to protect themselves and their small unit teams. Soldiers will require different levels of protection capabilities, which will be augmented by mission tailored, modular capabilities. However, a minimum standard must be established and maintained through self-discipline, unit procedures, and commander enforced standards.

(2) Soldiers will require advanced ballistic protection from small arms and the effects of explosive projectiles, and will need protection from lethal and nonlethal weapons, including those that may affect vision and hearing. Modular protection augmentations must facilitate the ability to remain mobile and physically operational based on the Soldier's mission. When heavier loads are required, challenging terrain is expected, or additional protective capabilities need to be added, the use of bio-mechanical means will assist the Soldier in maintaining mobility on the battlefield. Soldiers will require uniforms and equipment that protect from the effects of wide ranging climatic conditions of temperature, humidity, altitude extremes, and environmental effects of water, mud, sand, and snow.

(3) Soldiers must also be protected from CBRN weapons, to include the exposure to non-military toxic industrial chemicals and materials. Soldier protection capabilities must include a “sense and treat” capability to monitor and diagnose wounds and injuries, permitting rapid application of self and buddy aid, to provide timely and accurate medical assistance to save lives. Lastly, there will be an increased integration of Army civilians and contractors into the structure of the future Modular Force. While they will not require combat capabilities, they will require protection capabilities similar to Soldiers in the combat zone.

d. Key Idea #2: Platform Protection

(1) Future Modular Force platforms, vehicles, aircraft, and shelters must be light-weight and mobile in all environment conditions. The mobility offered by these assets and their operational and tactical employment in intra-theater, decisive maneuver, and distributed operations provide an element of protection. Platforms will require organic built-in protection against lethal and nonlethal threats, to including hardening against directed energy threats, when closing with the enemy or operating in close proximity to the adversary. The use of light weight, self-healing, and reactive composite material will protect personnel, cargo, and facilities from the effects of direct and indirect fire.

(2) As important as passive protection is, integrated active protection must be incorporated in all platforms. This is especially important for aviation assets that operate close to the enemy and provide transportation to the future Modular Force. Active protection systems, discussed in key idea #6, must identify and destroy enemy threats, and have the ability to deceive and jam enemy sensor systems. Additionally, platforms must execute accurate, scaleable, counter fire via self-synchronizing knowledge systems, which execute cooperative engagement with mutually supporting assets.

e. Key Idea #3: Unit Protection

(1) Unit protection is the cumulative effort of Soldier and platform protection with the addition of unit level knowledge and C2 capabilities, coupled with tactics to detect and identify friendly and enemy forces, and their locations. These capabilities will minimize or eliminate fratricide, provide warning, and employ protective systems to counter lethal and nonlethal threats, and allow for accurate action before an adversary can affect friendly operations. Seizing the initiative and taking an offensive stance, using the ability to detect and strike an adversary with stand-off precision scaleable weapons from multiple platforms through cooperative engagement and from outside of the enemy’s weapons capability, also provides unit protection. These actions require the means to detect, assess, and share knowledge in real-time and provide mutual support.

(2) Future Modular Force units will require high maneuverability to operate in a dispersed and distributive manner. Units will require capabilities that reduce their signature on the battlefield by physical and electronic masking, to reduce an adversary’s ability to determine their location. Mobility, distributed operations, stand-off precision weapons, and knowledge superiority will place the future Modular Force unit in the position of advantage over its adversary. When a unit’s organic protection capabilities are inadequate to a mission, it must

receive modular additions, provided by other operational level units or joint protection interdependencies. Operational modular capabilities must provide recovery resources to rapidly reconstitute the unit's warfighting ability.

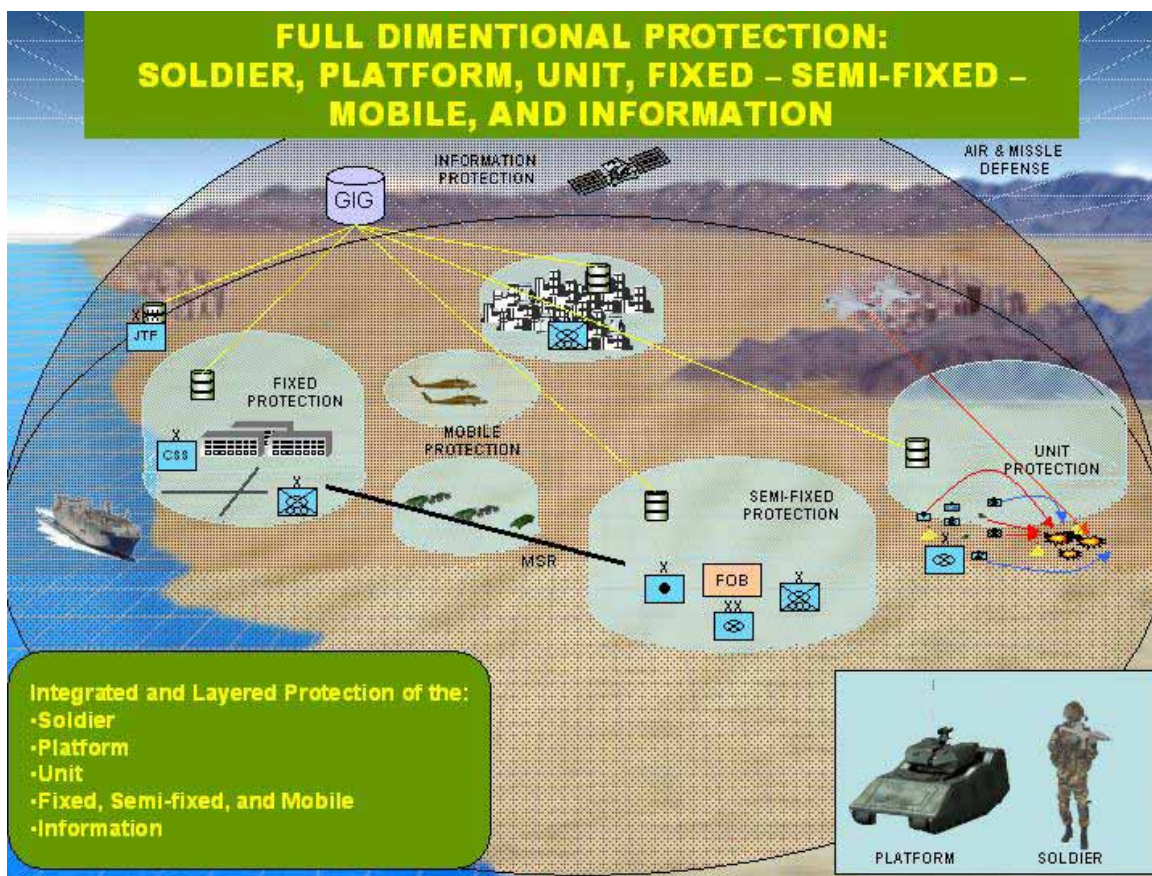


Figure 3-1. Soldier, Platform, Fixed, Semi-fixed, and Mobile, and Information Protection

f. Key Idea #4: Fixed, Semi-fixed, and Mobile Protection (see fig 3-1)

(1) Protection capabilities must be effective in fixed, semi-fixed, and mobile environments, and provide the ability to protect the force during maneuver operations. The augmentation with modular Army forces and joint protection interdependencies will provide comprehensive and layered capabilities.

(2) *Fixed and Semi-fixed Protection*

(a) Fixed and semi-fixed sites are foundations for projecting and sustaining Army operations. These facilities and services are needed to support missions and present non-mobile targets. Organizations at these sites must be able to conduct offensive operations to defeat an enemy, before they strike using long-range fires and operational mobility. The protection of

these foundations is the cumulative effect of Soldier, platform, and unit protection within a selected space.

(b) These sites will often lack a large and robust protection force. The use of passive and active protective systems will be integrated; for example, berms, minefields, barriers, and camouflage, used with the active protection of automated protection systems and robotics. Fixed sites must be reasonably hardened to deny the effects of electromagnetic pulse and other threats that have the ability to deny, disrupt, and destroy mission critical electronic components.

(c) The protection of installations and activities includes the civilian government work force, contractors, and family members. Close coordination with local authorities to provide an integrated security environment is required since varied ranges of capabilities exist at these foundations. The proximity to civilians will dictate the routine use of nonlethal and scaleable effects to minimize or eliminate friendly casualties and damage.

(3) *Mobile Protection*

(a) Mobile protection includes strategic deployment, entry operations, and intratheater or decisive maneuver. Maneuver requires simultaneous and distributed operations with continuous action. The future Modular Force will require continuous, all environment mobile, protection capabilities to facilitate freedom of movement.

(b) Mobile protection will take place in both domestic and foreign locales, and require coordination and cooperation with civil authorities, and the execution of joint interdependencies. Once offense, defense, and stability operations commence, mobility will inherently enhance protection through the application of movement and uncertainty of location.

(c) The protection of mobile forces will require the same application of integrated fixed and semi-fixed capabilities, and will protect the commander's freedom of maneuver and combat power, ensuring the full application of effects at the decisive time and place.

g. Key Idea #5: Information Protection

(1) The future Modular Force will be information centric, employing an array of electronic communications, C2 systems, and intelligence sensors. Protection of information requires the integration of policy, procedures, operations, personnel, and technology to protect and defend information and information systems. It also entails guarding the communications, networks, and computers, and rapidly restoring information or information systems if compromised, corrupted, or destroyed. These may be attacked by lethal and nonlethal capabilities, such as electromagnetic pulse and microwave weapons. The systems, as well as the electronic components of vehicles and aircraft, must also be shielded to prevent any interruption or destruction.

(2) The Army's transformation into joint, network-centric, interoperable, knowledge based warfare is supported by LandWarNet, the Army's portion of the global information grid (GIG). The GIG is the physical manifestation of the DOD's network-centric warfare doctrine

system, which is the globally interconnected, end-to-end set of information capabilities, associated processes, and personnel assisting warfighters. This knowledge based future Modular Force must protect the systems that support the ability to detect, assess, decide, and act against intrusion and destructive electronic attacks. The defense will require joint interdependence to protect all system nodes on the ground, in the air, at sea, and in space. An effective defense must automatically identify lethal and nonlethal attacks and reconfigure itself to negate the action, automatically quarantine malicious code attacks and worms, and provide a high level of information assurance.

h. Key Idea #6: Active Protection

(1) Active protection encompasses actions by Soldiers, platforms, and units to identify and defeat an adversary before friendly operations are affected.

(a) *Preemptive Action.* Preemptive actions will inherently utilize offensive capabilities. Active protection will utilize integrated capabilities to provide proactive solutions to detect and act against threats. Active measures will include a capability to detect, decide, and act to defeat threats by the employment of lethal and nonlethal capabilities to destroy, neutralize or mitigate the threat at a safe distance, and cause minimal secondary damage to friendly individuals and equipment. In addition, the ability to detect and automatically issue a warning that includes delivery capabilities, to take action against adversary small arms, such as hand-held rockets and missiles, will prevent initial or subsequent attacks. These “act” capabilities require scaleable effects weapons based on line-of-sight and non-line-of-sight, electronic and digital signature, and audio and visual detection.

(b) If an adversary is able to attack first, then active protection capabilities require the ability to react and destroy the threat before it reaches the intended target, and act upon the source of the attack. Automated systems may be attached to platforms, facilities, or placed independently to provide area protection. The active protection systems must be lightweight, easily emplaced, networked, and usable in mobile or static operations. Active measures should include physical and electronic deception, and the use of decoys. Nonlethal capabilities will be especially important when operating in close proximity to non-combatants.

(c) *Integrated Capabilities.* The capabilities for active protection will include networked C2, communications, computer systems, and lethal and nonlethal defense systems. The ability for these capabilities to seamlessly operate with each other will provide the required comprehensive protection. The use of measures, such as automatic solutions, improved sensor capabilities, and robotic are essential for future active protection and are emphasized here, but do not preclude the development of additional active protection capabilities.

(2) *Automated Systems.* The ability to quickly process large amounts of data at high speeds, to prepare and act with protection systems is essential to rapid, decisive action. Active protection systems require accurate data to identify and evaluate threats, announce warnings, automatically employ defensive capabilities, and enable automated offensive counter capabilities. However, without the human element, these weapons have the potential to inflict unintended casualties and destruction. Until these systems can account for a wide range of

variables, apply rules of engagement (which consider the escalation of force), and have full situational understanding programmed into their processes, human comprehension will be required.

(3) *Robotics*

(a) Unmanned capabilities will decrease the risk to the Soldier or Service member and provide the capability for standoff threat detection and neutralization. Robotics is a force multiplier and will reduce the need to increase personnel end strength to achieve greater protective capabilities. Robotics can provide an aggressive, offensive, and wide-ranging capability to detect and act before adversary capabilities' can be brought to bear on friendly targets. Robotic systems, both ground and air, must be reliable, compact, and easy to deploy, in order to provide rapid responses to operations. These mechanical sentinel systems must be designed not to fatigue over time like humans, to operate over complex terrain and restricted spaces in all weather environments, and even during limited visibility.

(b) Ultimately these unmanned capabilities must have a learning based perception to understand their environment and recognize variables. Platforms will require a modular capability package that includes a wide array of sensors, scaleable effects weapon capabilities, and mechanical systems that can manipulate objects to perform tasks such as rendering explosive devices or CBRN materials safe. Robotics is required at the lowest unit level and must be fully integrated into the organization's organic protection scheme.

(4) *Sensors: Every Soldier is a Sensor*

(a) Soldiers will continue to play the most critical role by reporting data and information, and will be aided by improved optics and reliable communications links. To augment the Soldiers' abilities, mechanical sensors are needed. These sensors must replicate all human senses, while providing increased capabilities, such as operating in all weather conditions, in all light spectrums and in the electro-magnetic environment. After detecting, the sensor must conduct initial fusion of data (correlating basic data elements such as time, location, and signal), which is then provided to the Soldiers and commander increasing their situational understanding and therefore their ability to decide and act. The sensors must be easily deployable by land and air, and operate mounted or dismounted. Sensors must also offer high probability of target detection with low false detection rates. The sensors must incorporate specialized capabilities, such as, issuing automated warnings and sensing electromagnetic, chemical, biological, or radiological weapons and toxic industrial hazards.

(b) Integration in the knowledge network will allow the sensors to access databases to verify information while conducting specific operations like biometric scanning. Sensors can be packaged together to provide a wide variety of stand-off protection during high risk tasks, such as vehicle checkpoints and entry point security. Sensors will enable the individual and unit to provide protection by sensing, warning, and providing valuable knowledge to the decisionmaker. Sensors, whether manned, unmanned, or unattended must have a level of protection from both lethal and nonlethal threats.

i. Key Idea #7: Multi-partner Protection (see fig 3-2)

(1) Multi-partner protection includes the integration of protection capabilities in the following areas: AMD, fires, homeland defense, installations and activities, information and environmental operations, combating WMDs, health services support, internment and resettlement operations, and personnel recovery.

(2) Multi-partner protection improves interagency operations during civil support to both critical civil infrastructure, and non-government and government personnel. Multi-partner protection enhances multi-national operations via the protection of the population, critical infrastructure, training of host nation forces, and the execution of military interdependencies when possible.

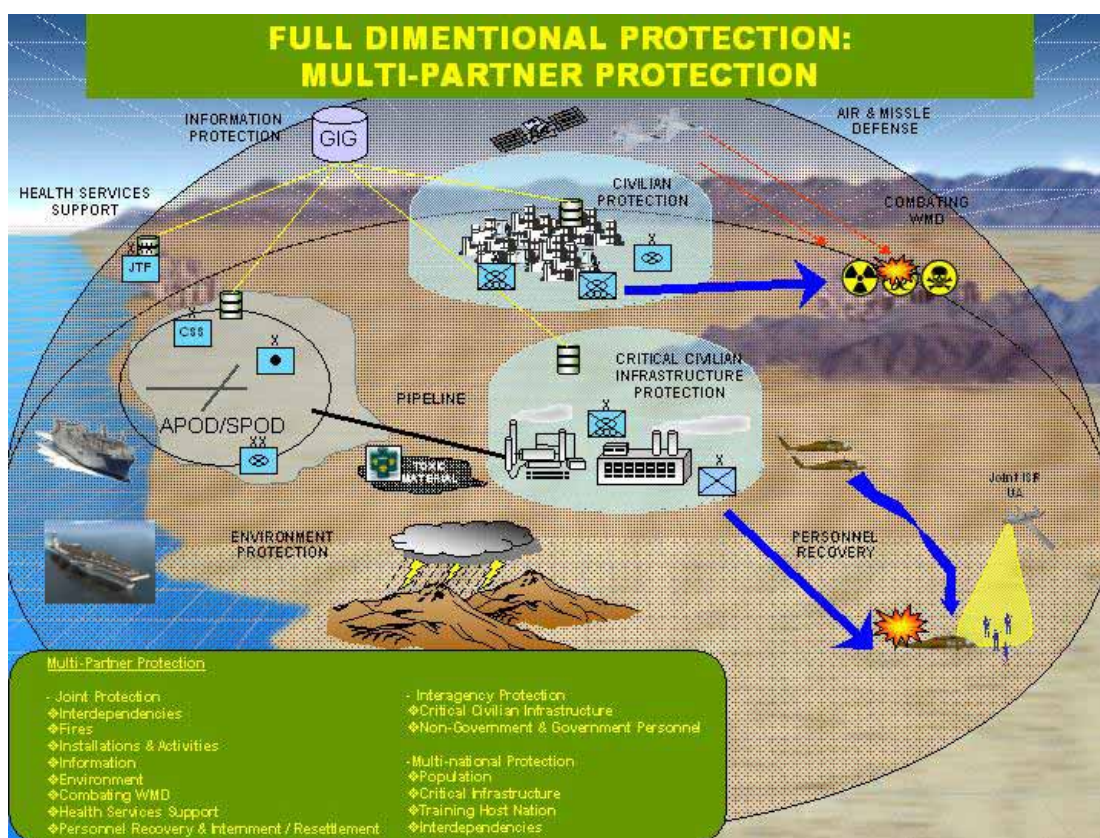


Figure 3-2. Multi-partner Protection

(3) *Joint Protection*

(a) **Interdependencies.** The ability of the future Modular Force to rapidly project and sustain itself requires protection for domestic bases or forward deployed locations, from fort to port enroute and into the joint operations area (JOA). The Army will rely on air and sea, lines of communication security provided by other Services to eliminate potential threats during movement, and to augment Army modular protection packages initially deployed into the JOA. Within the JOA, civil infrastructure protection will greatly assist successful stability operations

and decrease the burden on external military support requirements. There is also a requirement to protect the domestic critical military, designated critical civil infrastructure, and defense industrial base (DIB) which supports military operations, as well as, the need to protect the identified civilian populations. These missions require the employment of joint interdependent protection capabilities.

(b) Joint Air and Missile Defense and Fires. Capabilities must detect, act, warn, and cue systems from both land and space in order to act against, and defeat a myriad of threats to include ballistic and tactical missiles, cruise missiles, armed unmanned aircraft, aircraft, rockets, artillery, mortar, and rocket propelled grenades, and their delivery processes and nodes. Integrated and layered protection combining land, sea, air, and space-based capabilities will provide a protective umbrella for intermediate staging bases (ISB) and ports of embarkation and debarkation. Integrated capabilities will require mobility and long-range to protect the rapid movement of the future Modular Force during ground operations, and to execute integrated defense of critical assets and fires against adversary targets. These capabilities must share a common knowledge base to allow for the selection of the best possible systems for engagement and provide layered coverage of the protected area.

(c) Homeland Defense. The future Modular Force will continue to be part of the JF to protect the U.S. homeland from external threats and aggression (see fig 3-3). It will apply its

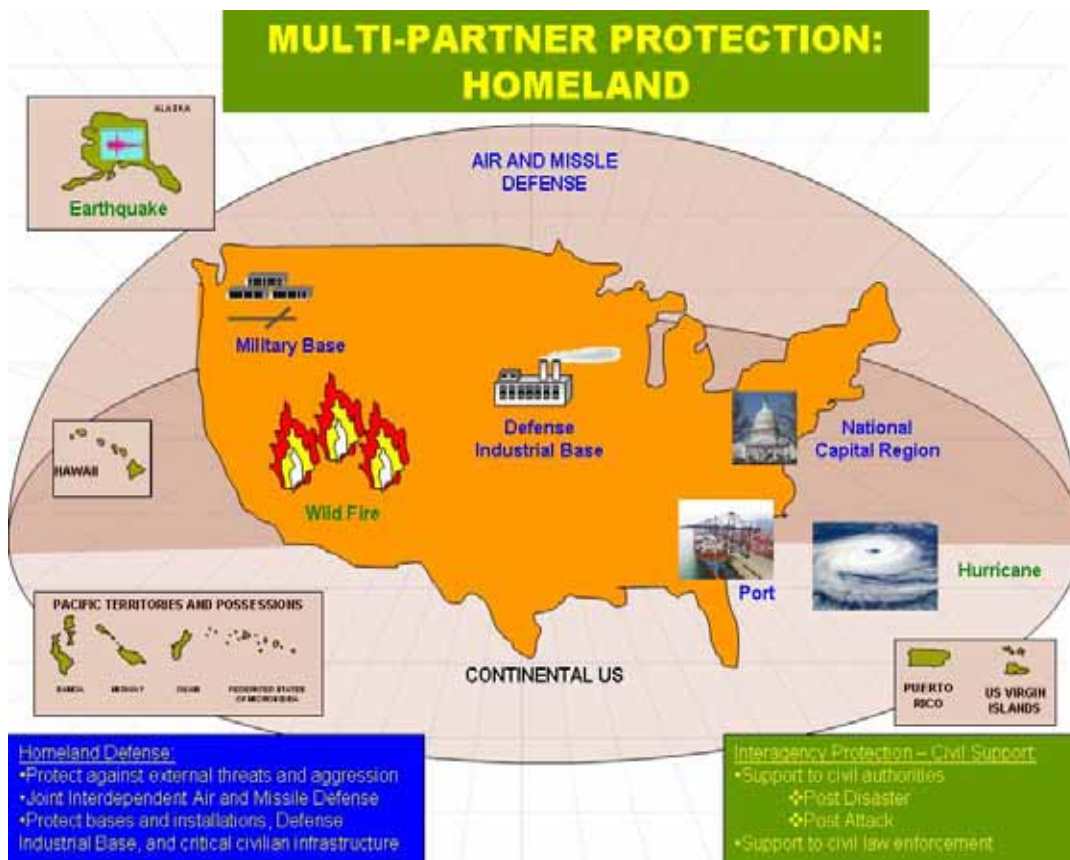


Figure 3-3. Homeland

warfighting capabilities to prevent attacks, and if necessary, defeat an adversary. The optimal method to achieve this is by eliminating threats as far from the homeland as possible using offensive measures and proactive protection. Joint interdependencies are the key for providing a layered defense using the Service capabilities of land, maritime, air, and space defenses. When faced by advanced technologies and multiple capabilities layered protection will be provided. An example is the employment of interdependent missile defense, where an adversary's threat can be detected from space at launch in order to facilitate interception and in the boost phase by air assets and enroute by land and sea based systems.

(d) Additionally, the integration of space and land based theater and tactical systems with air defense aircraft can engage and destroy aircraft, cruise missiles, and unmanned aircraft. The future Modular Force will not be expected to conduct large scale ground combat in the homeland. However, the future Modular Force should expect to conduct distributed protection operations augmenting civilian protection measures with nonlethal scaleable capabilities to secure and protect military bases, DIB locations, selected civilian critical infrastructure, and sites of National importance using appropriate organic capabilities.

(e) Installations and Activities. Joint occupied installations and activities in forward deployed locales will provide support for deployment activities, operations, sustainment, and C2. They will be under a joint protection environment, which requires coordination of protection between each element and will emphasize joint interdependencies. The future Modular Force can provide organic ground and air defense fires, sensor, robotics, and intelligence gathering capabilities to the unified protection scheme.

(f) Information. Knowledge systems should have numerous transmission nodes to eliminate a single point of failure. These land, sea, air, and space-based locations will rely on interdependent protection to maintain viability. An important part of this protective function is space-based systems to provide secure and non-line of sight communications. The platforms provide needed enablers of sensors, early warning, navigation, and support to precision engagement.

(g) Space-based systems will be a critical element during both entry and shaping operations into immature regions, and during the follow-on operations in a high-tempo, non-contiguous, simultaneous framework of distributed operations. The knowledge systems will require shielding from lethal and nonlethal weapons that might blind or destroy the systems. The ability to detect potential enemy systems will allow for precision strikes using the full range of friendly interdependent systems at the tactical, operational, and global strike levels. Additionally, information systems require controlled access, as well as physical protection to protect data in the network.

(h) Environmental Operations. The future Modular Force may face environmental situations which affect operations. These situations can manifest themselves as potential threats, either man-made or natural, and produce the loss or degradation of combat effectiveness. The threat may manifest by direct or indirect actions and include militarized CBRNE weapons or non-militarized WMD (toxic industrial chemicals/materials, non-military explosives, non-

weapon grade radioactive material), and industrial infrastructure (high-pressure gas lines, fuel pipeline, chemical stockpiles, or water treatment facilities).

(i) Natural threats can occur without direct participation of the adversary, but may be known and exploited to their advantage. These include: natural weather patterns that produce extremes in heat or cold; extreme weather such as high winds, heavy rain, snow, ice, and dust; altitude extremes; and disease or nuisance. The development of appropriate uniforms and equipment is needed to support the Soldier in these extremes. Natural environmental threats are typified by natural disasters or changes in geopolitical positions due to environmental issues.

(j) Combating WMD. To ensure JFs are not threatened or attacked by WMD, JFs must be prepared to: defeat and deter WMD use and deter next use; protect from, respond to, and recover from WMD use; prevent, dissuade, or deny WMD proliferation or possession; and reduce, eliminate, or reverse WMD possession. The future Modular Force will provide capabilities to the JF, often with interagency and multi-national partnership, to combat WMDs to ensure that U.S., friendly forces, and their home nations are not coerced or attacked by WMD. In peacetime or a passive environment this will include support to joint threat reduction activities and security cooperation efforts.

(k) During uncertain or hostile periods, the Army must be prepared to support combat operations for WMD elimination by locating, identifying, securing, rendering safe, disabling, and destroying an adversary's WMD programs and related capabilities. In any environment, the Army must be prepared to support operations to interdict the transit of WMD, its delivery systems and associated components, technologies, and expertise. Often this will be part of a joint operation requiring a rapid reaction to a fluid situation. This will include ground combat forces, aviation assets, CBRN defense, and response organizations.

(l) Offensive and defensive operations will include capabilities for lethal and nonlethal attacks to destroy or control the weapons and their infrastructure. Active and passive defense measures will be combined, for example, AMD coupled with capabilities that negate and minimize the effects of these weapons. The Army must be capable of managing the consequences of a WMD attack, including the means to reconstitute the military force to its full capabilities, and to provide support to the U.S. and friendly nations' civil population and governments to restore essential operations and services.

(m) Health Services Support. Health service support for the future Modular Force will provide for the promotion, improvement, conservation, and restoration of the mental and physical well-being of military forces, and as directed, other Services, agencies, and organizations. It is a continuum of care and support from peacetime preparation, through the point of injury or wounding in operations, and through successive levels to the domestic base. This will provide protection enablers by reducing the incidence of disease and nonbattle injury, using sound preventive medicine and health promotion programs, to rapidly return all patients to duty once medically fit. The health service support complements protection efforts, and includes all measures taken by the military health system, to ensure adequate capabilities are available to identify health threats and implement appropriate health service support measures.

(n) Internment and Resettlement. The future Modular Force will conduct internment and resettlement operations to include the handling, protecting, and accounting for dislocated noncombatants and conducting battlefield confinement of U.S. military prisoners. It is a legal and morale responsibility of Soldiers and units to ensure people are treated with honor as human beings. They are protected against violence, insults, public curiosity, and reprisals. Coercion is not inflicted on captives and detainees to obtain information. The human treatment of resettled civilians and internees take on an added importance (at the strategic level), as the global news network will report inappropriate actions which an adversary may use for propaganda purposes.

(o) Personnel Recovery. The future Modular Force may conduct military personnel recovery operations to obtain the release or recovery of captured or missing personnel. This will require joint operations using the increased mobility and speed for: search and rescue, survival, evasion, resistance, and escape; and the coordination of negotiated, as well as, forcible recovery options. This joint operation will often require the integrated capabilities of land, maritime and air forces operating in uncertain or hostile environments. Personnel recovery can also be conducted for the rescue of non-combatants of non-governmental organizations, U.S. citizens, and those of friendly and allied nations.

(4) *Interagency Protection*

(a) Civil Support. When directed by proper authorities, JFs assist domestic civil government with its capabilities to protect and save citizens lives, protect property, and ease suffering. The future Modular Force will have many capabilities to provide to the civil side of government to include transportation, medical, water, prime power, communications, consequence management from the effects of a WMD attack, and other essential services. In rare occasions, the future Modular Force may be required to assist in law and order tasks to protect the civil populace and maintain the way of life to its people. These will always be done in a manner that upholds laws and policies and uses the appropriate rules for use of force, graduated lethal response, and employment of nonlethal capabilities.

(b) Critical Civil Infrastructure. Numerous types of domestic critical civilian infrastructure support the future Modular Force. Military installations normally rely on civilian power, water, communication conductivity, and transportation grids for mission accomplishment. Their protection along with civilian owned portions of the DIB and civilian infrastructure that allows the military to mobilize, deploy and sustain itself, may require augmentation of military protection capabilities and civilian law enforcement. This will require close coordination with federal, state, local, and private partners. If military capabilities are required for domestic protection augmentation, appropriate laws and policies must be observed and implemented. The restraint of lethal force within close proximity to civilian population must be considered and the use of nonlethal capabilities increases in importance.

(c) Non-government and Government Personnel. Interagency partners are non-combatants and normally possess only minimal individual protection capabilities. Some non-government organizations do not want to directly affiliate themselves with military forces to maintain a level of neutrality, but their assistance, especially in stability operations, is required. While other non-government employees, such as contractors, have a direct link to the military

and often collocate with U.S. and multi-national military forces. Additionally, private security firms may be employed to operate in and around Army forces. These armed agents of private firms have the potential of being inadvertently involved in military operations. Forces must be aware of their existence and the means and procedures to communicate with them must be established. U.S. government civilian employees from the military Services, and such organizations as the Department of State, also require protection by the future Modular Force. The future Modular Force must integrate these individuals and organizations within their protection scheme and assist them in their operations by providing a secure environment.

(5) *Multi-national Protection*

(a) Population. The ability of the future Modular Force to protect the civilian population of friendly and allied nations supporting operations is essential. Its impact will be felt at the local level, throughout the host nation, and potentially internationally. By protecting the civil population, an adversary's influence will be reduced and support for the host nation and multi-national military forces will be increased. When operating in close proximity to the civilian population, restraint must be used with offensive capabilities, so not to cause unintended consequences. Nonlethal weapons and scaleable effects will have greater emphasis and take priority in first response.

(b) Critical Infrastructure. When the future Modular Force operates with friendly and allied nations, it will require the use of their critical infrastructure to support the flow of personnel, supplies, and services, and their support in basic requirements, such as, water, power, and transportation networks. By protecting this critical infrastructure the future Modular Force may reduce their sustainment footprint. This protection provides an additional benefit to the supporting friendly nation by augmenting their protection efforts with the JF protection umbrella. During stability operations the protection of critical infrastructure also provides the civilian population with basic services and will maintain economic viability by protecting key services, functions, and sources of employment.

(c) Training of Host Nation Forces. A well trained and capable host nation military force reduces the protection requirements the future Modular Force must provide to the host nation and will augment and support the U.S. military. The Modular Force may initially establish and administer training centers, provide training cadres, and provide advisors to operational host nation forces. A working knowledge of language, customs, and laws will assist in a successful effort. This training requirement may extend to host nation law enforcement organizations. However, given their comparable subject matter expertise, these organizations are best trained by other civilian law enforcement counterparts from supporting multi-national countries.

(d) Military Interdependencies. Multi-national military partners will provide some level of protection within their existing capabilities, both to themselves and to the U.S. military. The future Modular Force, along with joint interdependent capabilities, will often augment this protection. This may be in the combat area of the JOA, or the protection may be extended back to the multi-national home and ISB. Routine exercises, training, and information exchanges will provide a base level of understanding and needs between all participants. This will lead to

identification of seams and gaps and protection capabilities. Emphasis should be placed in C2, communications, procedures, and employment of the protection capabilities.

Chapter 4

The Future Modular Force in the Joint Campaign: Protect

4-1. Introduction

a. The future Modular Force will routinely operate as part of a joint campaign. In doing so, it will conduct operations aligned with the six phases as described in current joint doctrine,² *shape, deter, seize the initiative, dominate, stabilize, and enable civil authority*.

b. The Army capstone concept, which predates this new joint phase titling, uses the following four phases: *prepare and posture, shape and enter, conduct decisive operations, and transition*. For concept purposes, the *prepare and posture* phase can be considered as encompassing the two distinct joint phases of *shape* and *deter*. Similarly, the Army *shape and enter* phase can be considered as including elements of the joint *shape* and *seize the initiative* phases. The Army *conduct decisive operations* phase includes the joint *seize the initiative* phase and parts of *dominate, stabilize, and enable civil authority*. *Transition* as used in the Army capstone overlaps the joint phases of *dominate, stabilize, and enable civil authority*.

c. The discussion of joint phasing does not imply that those phases are sequential in planning or in execution. In fact, many phases will be concurrent while some phases may actually be omitted from a particular campaign or major operation. For example, though Joint Pub 3-0 labels *shape* as Phase 0, it is actually a continuous effort that only begins in Phase 0. In some instances, Phase I, *deter*, may not occur at all, the JF commander may go directly from *shape* to *seize the initiative*.

4-2. Shape

a. Global engagement with friendly nations and multi-national military forces will shape future operations. This is achieved by conducting exercises, training military and civil security forces, and gaining valuable situational awareness of key locations around the world. By preparing the region during times of relative peace the host nation will be better prepared to protect itself, thereby decreasing the requirement for a commitment of U.S. forces. An intimate understanding of the area provides a knowledge base to plan for future joint protection requirements. During wartime operations, the future Modular Force may conduct similar operations developing situational understanding, placing protection capabilities in place to support future operations, conducting attacks to disrupt enemy plans, and continued training of indigenous forces.

b. Peacetime shaping operations will already be taking place in the JOA. This provides some level of protection through a trained indigenous military and security force, and situational

² Joint Publication 3-0, "Joint Operations."

understanding that will support future operations. If entry is into a hostile or austere environment, joint interdependent protect capabilities will shape the JOA by destroying or fixing enemy forces and creating protected zones, so the enemy may not engage or interfere with the arrival of the future Modular Force. Capabilities including deception obscuration can deliberately mislead enemy or adversary military decisionmakers as to friendly military capabilities, intentions, and operations, thereby causing the enemy or adversary to take specific actions (or inactions) that contribute to accomplishing the friendly mission. As appropriate, air and maritime forces work in conjunction with the land component to provide protection to ensure the successful entry for the campaign.

4-3. Deter

a. The ability of the future Modular Force to engage in operational maneuver from strategic distance may deter an adversary from executing their plans, for example, long-range precision fires that strike at, intercept, and destroy the enemy at great distances will protect a friendly nation from aggression.

b. Likewise, the capability of rapid lethal movement may deter WMD threats. The future Modular Force will seek to deter or preempt threats against the homeland. This will be accomplished by the neutralization at foreign points of origin or during their approach to the U.S.

4-4. Seize the Initiative

a. Entry operations must include modular protection capabilities that will rapidly establish a joint fires umbrella and joint interdependent protection networks, which will provide local, wide area or theater-wide air and maritime superiority. These protection capabilities will enhance survivability by reinforcing organic capabilities, especially where friendly host nation assets are not available or when the entry point is under an adversary's control during forcible entry operations. The use of multiple entry points will help overcome enemy anti-access actions, enhance surprise, reduce predictability, and through the conduct of immediate operations after arrival, produce multiple dilemmas for the enemy, reduce risk, and support protection actions.

b. The ability to project the force from the home station of the future Modular Force directly to the operational area and move into decisive operations will require protection capabilities that span many domains and include JIM participation. This includes protection capabilities applied during fort to port at the alert stage in preparation for deployment and movement to the aerial or sea port. The later will often be over civil controlled transportation assets such as roads, bridges, and rail lines and utilize non-military seaports and some civil airfields.

c. To ensure the safe and timely arrival of the future Modular Force, interagency and security cooperation will be necessary, and at times these agencies will often be present in forward locales. The capability to comprehensively interoperate with some interagency and U.S. security components will be required to ensure the force access in areas where these agencies are already operating or when all agencies will operate together. In addition, once forward deployed, multi-national cooperation will be required in this initial movement, as well as in transit.

d. Upon departure of the ports in the strategic movement to the JOA, both the sea and air lanes will require protection. This protection will be provided by joint interdependencies providing secure corridors for air and sea movement. Multi-national support may also be necessary when ISBs, logistical hubs, and enroute refueling points are established. Active and passive protection capabilities must be included in the design of advanced lift platforms.

4-5. Dominate

a. Intratheater Operational Maneuver.³ Operational maneuver will seek to sequence engagements in time, space, and purpose to reach decisive military results. This maneuver will require joint enabled protection. Often this maneuver will be accomplished through air movement, either organic Modular Force rotary wing assets or fix winged capabilities provided by other Services. This vertical maneuver will require air defense suppression at the landing zones and enroute along multiple axes, and integrated fires capacities to target threats once detected. These same joint protection interdependencies are also needed when the Modular Force conducts maneuver from sea based platforms. Protection modules added to organic capabilities will allow the attacking force to defend entry points and key terrain until sufficient force is assembled to permit sustained offensive operations.

b. Decisive Maneuver. The future Modular Force must have the ability to detect and rapidly assess the enemy's actions, so it can maneuver over multiple axes by multiple means to reach a decisive point and defeat, destroy, dislocate, or disintegrate the enemy. The use of stealth, speed, and dispersion will enable higher levels of protection during maneuver. The goal of protection during these decisive operations is to minimize losses, hamper the adversary's common operating picture perceptions, enable the commander to maintain freedom of movement via integrated fires, and continue operations to achieve the campaign objectives.

(1) *Simultaneous, Distributed Operations.* The future Modular Force will routinely conduct decentralized, non-contiguous operations, and divisions and corps will be employed in simultaneous operations distributed across the entire JOA. The non-linear operations will provide protection to the force, by passing forces at less important locations and allowing for massing protection assets at the most critical location, to enhance freedom of movement and mission accomplishment. When defensive operations are required, modular protection assets will be required to protect the civil populace, critical support facilities, infrastructure, and vital support operations such as logistical convoys. Accomplishing this will require a high level of knowledge; employment of precision tactical stand-off scaleable effects systems to disable or destroy; exploitation of higher echelon fires and effects; use of deception and integrated protection means; and execution of precision maneuver in spoiling attacks and counterattacks.

(2) *Direct Attack of Enemy Decisive Points and Centers of Gravity.* The employment of offensive capabilities and the use of operational maneuver to directly attack enemy decisive points and centers of gravity with disorienting, disabling, and destructive scaleable effects will provide protection to the Modular Force by placing the enemy in a position of disadvantage. When offensive operations are combined with organic and non-organic protection capabilities

³ See Army Capstone Concept for full discussion of its Seven Key Ideas.

this will help ensure successful maneuver on the ground and in the air. Often these will be provided through joint interdependencies.

(3) *Continuous Operations and Controlled Operational Tempo*. The elimination of operational pauses will deny the enemy time to reorganize and reconstitute, possibly shortening the duration of the campaign. Controlling the operational tempo will overwhelm the enemy's capability to respond effectively and provide a level of protection to the future Modular Force.

c. Distributed Maneuver Support and Sustainment

(1) *Maneuver Support*. This provides a variety of functions that directly enhances protection for the future Modular Force. Maneuver support provides detailed information on the population, weather, terrain, and the operational environment reducing the adversary's "home field" advantage. It assists in the rapid movement of forces through ports of entry reducing vulnerability to attacks. It assures mobility of friendly forces, freedom of movement, and protection in man-made and natural terrain and eliminates obstacles; it shapes the terrain by canalizing the enemy and emplacing obstacles and minefields. Maneuver support also prepares protective structures and emplacements, and eliminates hazards and restores the environment.

(2) *Maneuver Sustainment*. To support the future Modular Force, sustainment capabilities must provide a continuous, precise, assured provisioning of deployed Army and other Service forces in any environment, guaranteeing their ability to generate, maintain, and employ combat power throughout the campaign. This must be accomplished with the smallest possible footprint in the JOA. The smaller signature provides fewer targets for the enemy and requires less protective measures. However, this sustainment idea requires on demand access to a ubiquitous global network and expands protective requirements at the strategic level, outside of the JOA to assure success. Thus, the protection of the global sustainment network, including installations, ports, airfields, transportation modes, and critical assets must be considered and addressed.

4-6. Stabilize

a. The future Modular Force must be capable of conducting stability operations, either as a transition from combat operations or concurrently with the combat operations. These will likely be conducted at the unit level and require many nonlethal capabilities.

b. The future Modular Force may also perform such activities as building or restoring of essential services, monitoring elections, and close interaction with and understanding of the civil population and interagency support organizations. Based on the threat, the force must protect the civilian populations and resources while maintaining adequate levels of force protection and conducting offensive actions to destroy the enemy.

4-7. Enable Civil Authorities

a. The future Modular Force may have to provide protection to legitimate governments to allow for their continued existence or to establish new regimes. This will include the populace,

government facilities, critical infrastructure, economic sites, and those of cultural value. This will continue until the friendly government can conduct its own security.

b. To assist in this goal, the future Modular Force may conduct training activities for its military forces. Even after an appropriate level of security has been established and most U.S. forces have departed, certain capabilities such as AMD may be required for long-term protection.

Chapter 5

Future Capabilities and Their Solutions in DOTMLPF

5-1. Introduction

a. This chapter discusses in greater detail the capabilities and their implementing solutions necessary for future commanders to execute the function of protection. The capabilities are grouped by the “key ideas” of: Soldier protection; platform protection; unit protection; fixed, semi-fixed and mobile protection; information protection; active protection; and multi-partner protection. They are then analyzed for possible solutions to their implementation in doctrine, organization, training, materiel, leadership and education, personnel, facilities (DOTMLPF), when appropriate.

b. This is not intended to be an exhaustive list and many of the items cited below will require additional analysis before comprehensive actionable recommendations emerge.

5-2. Soldier Protection

a. Doctrine

(1) The future Modular Force requires the capability to understand how to protect itself in the unique challenges of complex terrain during operations and to maintain fighting capabilities for mission accomplishment.

(2) The future Modular Force brigade combat team (BCT) requires the capability to understand the employment of hostile nonlethal, directed, and scaleable effects in combat and non-combat situations to protect the individual and decrease casualties.

b. Training

(1) The future Modular Force BCT and division require the capability to accommodate an increasing number of protection training tasks without a corresponding increase in time available for training, in order to prepare for combat and non-combat operations.

(2) The future Modular Force BCT requires the capability to receive updated or new training support packages for mine and unexploded ordinance clearing in a formal or unit training setting, in order to respond to a changing threat.

c. Materiel

(1) The modular body protection “kit” must allow the Soldier to remain mobile and physically flexible based on the Soldier’s tactical mission in all types of terrain, and provide protection in all climatic and CBRNE environments, in order to provide protection from small arms, the effects of explosives and fragments, directed energy, and nonlethal weapons.

(2) The future Modular Force BCT and division require the capability for advanced rocket, artillery and mortar detection, warning, respond, and intercept systems in a JIM environment, in order to protect combatants and non-combatants from indirect fire threats.

(3) The future Modular Force BCT and division require the capability for precision munitions, both line-of-sight and non-line-of-sight in combat operations, in order to reduce friendly and unintended casualties.

(4) The future Modular Force BCT and division require the capability for lightweight and mobile shelter systems with increased ballistic protection in combat operations, in order to reduce casualties.

(5) The future Modular Force requires the capability for advanced CBRNE and toxic industrial materials (TIM) hazard detection, protection, and decontamination in a JIM environment, in order to take preventive measures and reduce casualties.

(6) The future Modular Force BCT and division require the capability for advanced individual protective armor systems in mounted and dismounted operations, in order to reduce casualties.

(7) The future Modular Force BCT requires the capability for chameleon camouflage in combat operations, in order to reduce detection by the enemy.

(8) The future Modular Force requires the capability for nonlethal and scaleable effects in combat and non-combat situations to apply the appropriate force, in order to eliminate undesired casualties.

(9) The future Modular Force BCT requires the capability for improve obstacle countermeasures during movement and maneuver, in order to increase force mobility and decrease threats.

(10) The future Modular Force BCT requires the capability for increased mobility in combat operations to decrease target vulnerability and enable the rapid transport of security forces, in order to prevent attacks and defeat an adversary.

(11) The future Modular Force BCT requires the capability for protection in combat to overcome reduced geometry common to urban combat operations, in order to shorten engagement distances, compress response times, and vary angles of attack.

(12) The future Modular Force requires the capability for protection against improvised explosive devices (IED), snipers, rocket propelled grenades, directed energy, and WMD in combat, in order to reduce casualties.

(13) The future Modular Force BCT requires the capability to prohibit the enemy from detecting, tracking, and targeting Soldiers while operating in a hostile urban environment, in order to reduce the enemy's capability to inflict losses.

(14) The future Modular Force requires the capability to reduce the threat and operational vulnerability, and avoid contamination under CBRN hazard conditions, in order to prevent or reduce casualties.

(15) The future Modular Force BCT requires the capability of deception tools in combat operations to provide protection to combatants and non-combatants by deceiving the enemy, in order to conceal locations and capabilities.

(16) The future Modular Force BCT and below require the capability to differentiate between combatants and non-combatants in a JIM environment, in order to eliminate unintended casualties and assist in the selection of lethal and nonlethal effects.

(17) The future Modular Force requires the capability to provide active and passive protection measures through surveillance and detection, such as, warning to don protective gear or going to collective shelters, monitoring and assessing the degree of contamination, and treatment and personnel rescue after an attack, in order to protect lives and prevent casualties.

(18) The future Modular Force BCT Soldier requires the capability for medical surveillance and intelligence to detect, assess, and warn against health threats, use of medical countermeasures to defend against threats, and medical rehabilitative care to recover following injury and illness in a JIM environment, in order to protect military and civil populations.

(19) The future Modular Force BCT requires the capability to employ active and passive CBRN protection measures in a JIM environment, in order to protect itself during combat operations.

(20) The future Modular Force BCT and below require the capability for near real-time combat identification of friendly, combatant, and non-combatant, through platform to platform (air and ground), platform to Soldier, Soldier to platform, and Soldier to Soldier interrogation across the spectrum of operations, in order to provide seamless integration of joint combat identification measures.

d. Leadership and Education

(1) The future Modular Force requires the capability to operate in the requirements of space and time in a JIM environment, in order to respond to ever changing threats and situations.

(2) The future Modular Force BCT and above require the capability to understand organic and joint capabilities in a JIM environment, in order to employ interdependencies.

(3) The future Modular Force requires the capability to develop and maintain technical and tactical proficiency with protection measures in all situations, in order to preserve capabilities.

(4) The future Modular Force division and above require the capability to emulate cultural predilections, motivations, objectives, internal planning, technical and operational capabilities, and decision processes of potential adversary groups and uncommitted populace through red-teaming in a JIM environment, in order to prepare leaders for operations in different and varying cultures.

(5) The future Modular Force BCT and below require the capability to clearly understand the current and predicted hazard situations, capable of envisioning critical mission end states, and visualizing the sequence of events to move an installation or deployed force from its current state to those end states during formal and unit training environments, in order to prepare leaders for a changing adaptable enemy.

(6) The future Modular Force Soldier requires the capability to become a dynamic leader, who is mission focused, doctrinally sound, and performance oriented; who has the train as you fight mentality; who is a primary trainer, who knows self, and supports lifelong learning and mentorship during formal and unit training environments, in order to prepare for peacetime and wartime operations.

(7) The future Modular Force Soldier requires the capability to become a leader who can perform effectively in a complex, uncertain, and dynamic operational environment across the ROMO, in order to execute protection functions and keep pace with the impact of emerging protection technologies.

e. Personnel

(1) The future Modular Force BCT requires the capability for Soldiers to execute protection missions in distributed and non-contiguous operations, in order to preserve the fighting force.

(2) The future Modular Force requires the capability for a culturally attuned Soldier in interagency and multi-national operations, in order to enhance unit success by leveraging local and host nation support.

(3) The future Modular Force BCT requires the capability to conduct rapid decisionmaking at lower levels to conduct protection measures in high tempo operations, in order to preserve the fighting capability of the force.

(4) The future Modular Force requires the capability to make decisions between the use of nonlethal and lethal capabilities in a JIM environment, in order to reduce unintended casualties and destruction.

f. Facilities. The future Modular Force requires the capability for structures with CBRNE protective capabilities, such as over pressure systems, low profile buildings providing decreased exposure, ballistic protection in walls and windows, and electronic shielding from remote intrusion and attack in permanent military installations, in order to protect the military force and the mission related equipment.

5-3. Platform Protection Capabilities

a. Platforms must be lightweight and mobile in all environmental conditions and possess organic protection against lethal and nonlethal threats. They will be made of lightweight, self-healing, and reactive composite material, and include integrated active protection measures.

b. Doctrine

(1) The future Modular Force BCT and division require the capability for understanding how to protect platforms in the unique challenges of complex terrain during operations, in order to maintain fighting capabilities for mission accomplishment.

(2) The future Modular Force BCT and above require the capability to understand the employment of hostile nonlethal, directed energy, and scaleable effects in combat and non-combat situations, in order to protect platforms.

c. Training. The future Modular Force BCT requires the capability for realistic large scale training in urban environments using multiple types of platforms, in order to prepare for an increasing requirement to operate in populated areas.

d. Materiel

(1) The future Modular Force BCT and division platforms require the capability for advanced rocket, artillery and mortar detection, warning, respond, and intercept systems in a JIM environment, in order to protect all types of platforms from indirect fire threats.

(2) The future Modular Force BCT and division platforms require the capability for precision munitions, both line-of-sight and non-line-of-sight in combat operations, in order to reduce friendly and unintended platform losses.

(3) The future Modular Force BCT and division platforms require the capability for lightweight and mobile shelter systems with increased ballistic protection in combat operations, in order to protect mounted and dismounted systems.

(4) The future Modular Force BCT and division platforms require the capability for advanced CBRN and TIM hazard detection, protection, and decontamination in a JIM

environment, in order to take preventive measures, reduce losses, and quickly recover capabilities.

(5) The future Modular Force BCT and division platforms require the capability for chameleon camouflage in combat operations, in order to reduce detection by the enemy.

(6) The future Modular Force BCT and division platforms require the capability for improved obstacle countermeasures during movement and maneuver, in order to increase force mobility and decrease losses.

(7) The future Modular Force BCT and division platforms require the capability for increased mobility in combat operations to decrease target vulnerability and enable the rapid transport of security forces, in order to prevent attacks and defeat an adversary.

(8) The future Modular Force BCT and division platforms require the capability for organic protection for maneuver support and maneuver sustainment units in a JIM environment, in order to maintain security in mobile and austere bases when operating away from maneuver units.

(9) The future Modular Force BCT and division platforms require the capability for protection in combat to overcome reduced geometry, for example, shorter engagement distances, compressed response times, and varying angles of attack, common to urban combat operations, in order to reduce casualties and loss of equipment.

(10) The future Modular Force BCT and division platforms require the capability for protection against IEDs, snipers, rocket propelled grenades, directed energy, and WMD in combat operations, in order to reduce casualties and loss of equipment.

(11) The future Modular Force BCT and division platforms require the capability to prohibit the enemy from detecting, tracking, and targeting U.S. led forces while operating in a hostile urban environment, in order to reduce their capability to inflict losses.

(12) The future Modular Force BCT and division platforms require the capability to reduce the threat and operational vulnerability, and avoid contamination under CBRN hazard conditions, in order to prevent or reduce equipment losses.

(13) The future Modular Force BCT and division platforms require the capability to protect space assets, to include communication nodes, to allow commanders, units, and Soldiers free access to all space-based capabilities, in order to provide communications, sensors, and warning to forces around the globe.

(14) The future Modular Force BCT and division platforms require the capability for deception in combat operations, in order to provide protection and reduce equipment losses.

(15) The future Modular Force BCT and division platforms require the capability to provide active and passive protection measures through surveillance, detection, warning, monitoring, and assessing the degree of contamination, in order to protect all types of platforms.

(16) The future Modular Force BCT and division platforms require the capability for near real-time combat identification of friendly, combatant, and non-combatant, through platform to platform (air and ground), platform to Soldier, and Soldier to platform interrogation across the spectrum of operations, in order to provide seamless integration of joint combat identification measures.

e. Facilities

(1) The future Modular Force requires the capability for structures with CBRNE protective capabilities, such as over pressure systems, low profile buildings providing decreased exposure, ballistic protection in walls and windows, and electronic shielding from remote intrusion and attack in permanent military installations, in order to protect the military and civilian workforce and their mission related equipment.

(2) The future Modular Force division and above require the capability for biometric entry identification systems in field and garrison environments, in order to provide greater reliability in ascertaining friendly and potential enemy personnel.

5-4. Unit Protection

a. Unit protection includes Soldier and platform protection integrated with knowledge, C2, and response capabilities. Unit protection will utilize active capabilities against lethal and nonlethal threats. A unit will additionally achieve protection through offensive operations using mobility, knowledge superiority, and precision engagement, defeating an adversary before they can attack, and advantageously posturing friendly forces for decisive operations.

b. Doctrine

(1) The future Modular Force requires the capability to understand how to conduct operations in a non-contiguous and distributed environment in JIM environment, in order to provide protection by enhanced maneuver and offensive operations.

(2) The future Modular Force requires the capability to understand how to protect units in the unique challenges of complex terrain during operations, in order to maintain fighting capabilities for mission accomplishment.

(3) The future Modular Force requires the capability to understand how to employ nonlethal and scaleable effects in combat and non-combat situations, in order to apply the appropriate force to eliminate undesired casualties.

(4) The future Modular Force maneuver support units require the capability to understand how to protect logistical installations, and air and ground lines of communication in a JIM environment, in order to maintain sustainment for continuous operations.

(5) The future Modular Force requires the capability to understand how to manage the security and protection of logistical installations, intermediate staging, and forward operating bases, to include air and ground lines of communication in a JIM environment, in order to efficiently use resources.

c. Organization

(1) The future Modular Force BCT and above require the capability for modular and scaleable organizations to augment protection requirements in a JIM environment, in order to rapidly respond to changing threats.

(2) The future Modular Force BCT and above require the capability for scaleable C2 system in a JIM environment, in order to integrate additional protection forces.

(3) The future Modular Force BCT and above require the capability for a multi-functional staff to analyze and assess the risks from a variety of threats in a JIM environment, in order to recommend where to take risks and how to minimize those risks.

(4) The future Modular Force requires the capability for multi-functional protection of units in all operational environments, in order to meet the mission requirements.

(5) The future Modular Force requires the capability for AMD, CBRNE defense, response and hazard mitigation, preventive medicine units for environmental monitoring, military police for law and order and populace control, critical site, and high risk personnel security forces in a JIM environment, in order to provide required protection capabilities to act against threats.

(6) The future Modular Force BCT and above require the capability for engineer units in a JIM environment, in order to create bases and counter mobility structures.

(7) The future Modular Force requires the capability to survive within all environments, in order to provide mission assurance and continuity of operations.

d. Training

(1) The future Modular Force requires the capability to accommodate an increasing number of collective protection training tasks without a corresponding increase in time available for training in formal and unit training environments, in order to prepare for combat and non-combat operations.

(2) The future Modular Force BCT and division require the capability for realistic large scale training in urban environments to prepare for an increasing requirement, in order to operate in populated areas.

(3) The future Modular Force BCT and below require the capability to receive updated or new training support packages for mine and unexploded ordinance clearing in a formal and unit training setting, in order to respond to a changing threat.

(4) The future Modular Force BCT and above require the capability to train teams to be capable of planning protection functions in a JIM environment, in order to achieve cohesive and responsive capabilities against an adversary's actions.

e. Materiel

(1) The future Modular Force BCT and division require the capability for advanced rocket, artillery and mortar detection, warning, respond, and intercept systems in a JIM environment, in order to protect combatants and non-combatants from indirect fire threats.

(2) The future Modular Force division and above require the capability for global strike using lethal and nonlethal weapon systems in a JIM environment to conduct preemptive and other offensive operations, in order to defeat a threat before it can strike.

(3) The future Modular Force BCT and division require the capability for precision munitions, both line-of-sight and non-line-of-sight in combat operations, in order to reduce friendly and unintended casualties.

(4) The future Modular Force BCT and division require the capability for lightweight and mobile shelter systems with increased ballistic protection in combat operations, in order to protect Soldiers and shelter mounted and dismounted systems.

(5) The future Modular Force requires the capability for advanced CBRN and TIM hazard detection, protection, and decontamination in a JIM environment, in order to take preventive measures, reduce casualties, and quickly recover capabilities.

(6) The future Modular Force BCT and division require the capability for gap crossing and force mobility capability in a JIM environment, in order to provide mobility of maneuver, maneuver support, and maneuver sustainment forces.

(7) The future Modular Force requires the capability for enhanced geospatial and geo-intelligence information manipulation, management, and dissemination systems in a JIM environment, in order to provide timely and accurate information to support protection operations.

(8) The future Modular Force requires the capability for nonlethal and scaleable effects in combat and non-combat situations to apply the appropriate force, in order to eliminate undesired casualties.

(9) The future Modular Force BCT and above require the capability for advanced intra-theater sealift using austere facilities in a JIM environment, in order to reduce vulnerabilities by using multiple, dispersed points of entry.

(10) The future Modular Force requires the capability for improved obstacle countermeasures during movement and maneuver, in order to increase force mobility and decrease threats.

(11) The future Modular Force BCT and division require the capability for increased mobility in combat operations to decrease target vulnerability and enable the rapid transport of security forces, in order to prevent attacks and defeat an adversary.

(12) The future Modular Force BCT and division requires the capability for smart munitions; dynamic, rapidly emplaced, self-healing minefields; traffic-ability reducers; multi-spectral obscurants; and a variety of nonlethal inhibitors in combat operations, in order to reduce enemy movement.

(13) The future Modular Force BCT requires the capability for a high volume of supporting fires in combat operations to effectively suppress, obscure, or illuminate in support of units directed to close with and destroy the enemy, in order to assure freedom of maneuver and to protect forces in contact.

(14) The future Modular Force maneuver support and maneuver sustainment units require the capability for organic protection in a JIM environment, in order to maintain their security in mobile and austere bases when operating away from maneuver units.

(15) The future Modular Force requires the capability for reliable communications in a JIM environment, in order to provide strong and redundant systems for information assurance.

(16) The future Modular Force requires the capability to protect itself in combat to overcome reduced geometry, for example, shorter engagement distances, compressed response times, and varying angles of attack, common to urban combat operations, in order to protect the military force and the mission related equipment.

(17) The future Modular Force requires the capability for protection against IEDs, snipers, rocket propelled grenades, directed energy, and weapons of mass destruction in combat operations, in order to reduce casualties and loss of equipment.

(18) The future Modular Force BCT and below require the capability to observe, monitor, and track actual or potential hostile, criminal and terrorist related activities that pose a threat to U.S. forces in a JIM environment, in order to prevent their adverse impact on current and future military operations.

(19) The future Modular Force requires the capability to prohibit the enemy from detecting, tracking, and targeting U.S. led forces while operating in a hostile urban environment, in order to reduce their capability to inflict losses.

(20) The future Modular Force requires the capability to reduce the CBRN threat of contamination and operational vulnerability and avoiding contamination under CBRN hazard conditions, in order to prevent or reduce casualties.

(21) The future Modular Force BCT and division requires the capability for maneuver, fires (lethal or nonlethal), or obstacles in-depth in combat, in order to protect the force.

(22) The future Modular Force requires the capability for the use of Army and Air Force weather observations, forecasts, and tactical decision aids as part of the near real-time Army weather support network in a JIM environment, in order to provide timely and accurate data to support combat and non-combat operations.

(23) The future Modular Force division requires the capability for a fully modular, full spectrum, deployable integrated AMD capability for global, homeland, regional, and theater defenses, in order to defeat enemy air and missile threats.

(24) The future Modular Force BCT and above requires the capability to protect space assets, to include communication nodes, to allow commanders, units, and individuals free access to all space-based capabilities, in order to provide communications, sensors, and warning to forces around the globe.

(25) The future Modular Force requires the capability for access to worldwide police and intelligence database, for example, the Federal Bureau of Investigation (FBI), the Central Intelligence Agency (CIA), and International Criminal Police Organization (Interpol), in an interagency and multi-national environment, in order to gain information on threats.

(26) The future Modular Force BCT and above requires the capability for antiterrorism and force protection planning tools in a JIM environment, in order to prepare protection measures and integrate into current and future operations.

(27) The future Modular Force BCT and below requires the capability for deception tools in combat operations, in order to provide protection to combatants and non-combatants by deceiving the enemy to locations and capabilities.

(28) The future Modular Force division and below requires the capability to differentiate between combatants and non-combatants in a JIM environment, in order to eliminate unintended casualties and assist in the selection of lethal and nonlethal effects.

(29) The future Modular Force requires the capability to swiftly manage the effects of an attack in combat operations, in order to minimize impact on operations and supporting infrastructure, to assess remaining capabilities, and recover from the attack.

(30) The future Modular Force BCT and below requires the capability to protect military and selected and designated civilian personnel from the effects of chemical, biological, nuclear, explosives, projectiles, directed energy, and nonlethal weapons in a JIM environment, in order to reduce or eliminate casualties.

(31) The future Modular Force requires the capability to provide active and passive protection measures through surveillance, detection, warning to don protective gear or going to collective shelters, monitoring and assessing the degree of contamination, treatment, and personnel rescue after an attack, in order to protect lives and prevent casualties.

(32) The future Modular Force requires the capability for medical surveillance and intelligence to detect, assess, and warn against health threats, use of medical countermeasures to defend against threats, and medical rehabilitative care to recover following injury and illness in a JIM environment, in order to protect military and civil populations.

(33) The future Modular Force BCT and above requires the capability to protect critical facilities and infrastructure from a physical surface, sub-surface, or CBRNE attack in a JIM environment, in order to maintain essential services and capabilities.

(34) The future Modular Force BCT and above requires the capability to prevent, defeat, and minimize the threat of an enemy air or missile attack in a JIM environment, in order to preserve the fighting capabilities of the force.

(35) The future Modular Force BCT and below requires the capability to employ active and passive CBRN protection measures in a JIM environment, in order to protect Soldiers, platforms, and units during combat operations.

(36) The future Modular Force units require the capability to maintain atmospheric, high altitude dominance, in order to protect the force during all phases of the operation.

(37) The future Modular Force division and below requires the capability to neutralize hazards and restore the environment in a JIM environment, in order to preserve required resources and maintain the way of life of nations and societies.

(38) The future Modular Force division and below requires the capability for near real-time combat identification of friendly, combatant, and non-combatant, through platform to platform (air and ground), platform to Soldier, Soldier to platform, and Soldier to Soldier interrogation across the spectrum of operations, in order to provide seamless integration of joint combat identification measures.

f. Leadership and Education

(1) The future Modular Force requires the capability to operate in the requirements of space and time in a JIM environment, in order to respond to ever changing threats and situations.

(2) The future Modular Force requires the capability to understand organic and joint capabilities in a JIM environment, in order to employ interdependencies.

(3) The future Modular Force requires the capability to develop and maintain technical and tactical proficiency with protection measures in all situations, in order to preserve to force.

(4) The future Modular Force requires the capability to emulate cultural predilections, motivations, objectives, internal planning, technical and operational capabilities, and decision processes of potential adversary groups and uncommitted populace through red-teaming, in order to prepare leaders for operations in different and varying cultures.

(5) The future Modular Force requires the capability to grow leaders with a clear understanding of the current and predicted hazard situations, capable of envisioning critical mission end states, and visualizing the sequence of events to moves an installation or deployed force from its current state to those end states during formal and unit training environments, in order to prepare leaders for a changing adaptable enemy.

(6) The future Modular Force requires the capability to develop dynamic leaders, who are mission focused, doctrinally sound, and performance oriented; who have the train as they fight mentality; who are primary trainers, who know themselves, and support lifelong learning and mentorship during formal and unit training environments, in order to prepare for peacetime or wartime operations.

(7) The future Modular Force requires the capability to develop leaders who can perform effectively in a complex, uncertain, and dynamic operational environment across the ROMO, in order to execute protection functions and keep pace with the impact of emerging protection technologies.

g. Personnel

(1) The future Modular Force requires the capability for leaders and Soldiers to execute protection missions in distributed and non-contiguous operations, in order to preserve the fighting force.

(2) The future Modular Force requires the capability for culturally attuned leaders in interagency and multi-national operations, in order to enhance unit success by leveraging local and host nation support to operations.

(3) The future Modular Force BCT and below requires the capability for leaders and Soldiers able to conduct rapid decisionmaking at lower levels to conduct protection measures in high tempo operations, in order to preserve the fighting capability of the force.

(4) The future Modular Force requires the capability for leaders and Soldiers to make decisions between the use of nonlethal and lethal capabilities in a JIM environment, in order to reduce unintended casualties and destruction.

h. Facilities

(1) The future Modular Force division and above require the capability for structures with CBRNE protective capabilities, such as over pressure systems, low profile buildings providing decreased exposure, ballistic protection in walls and windows, and electronic shielding

from remote intrusion and attack in permanent military installations, in order to protect the military and civilian workforce and their mission related equipment.

(2) The future Modular Force BCT and above requires the capability for biometric entry identification systems in field and garrison environments, in order to provide greater reliability in ascertaining friendly and potential enemy personnel.

(3) The future Modular Force requires the capability for advanced perimeter sensors in fixed, semi-fixed, and mobile environments, in order to provide early and accurate warning to the forces.

5-5. Fixed, Semi-fixed, and Mobile Protection

a. Protection capabilities must be effective in fixed, semi-fixed, and mobile environments, and during maneuver operations. Augmentation of modular Army forces with joint protection interdependencies will provide comprehensive lethal and nonlethal layered protection during these operations.

b. Doctrine

(1) The future Modular Force requires the capability to understand how to protect units in the unique challenges of complex terrain during operations to maintain fighting capabilities, in order to accomplish the mission.

(2) The future Modular Force requires the capability to understand how to protect logistic installations, and air and ground lines of communication in a JIM environment, in order to maintain sustainment for continuous operations.

(3) The future Modular Force maneuver support units require the capability to understand how to manage the security and protection of logistic installations, intermediate staging, and forward operating bases to include air and ground lines of communication in a JIM environment, in order to efficiently use resources.

c. Organization

(1) The future Modular Force requires the capability for modular and scaleable organizations to augment protection requirements in a JIM environment, in order to rapidly respond to changing threats.

(2) The future Modular Force BCT and above requires the capability for a scaleable C2 system in a JIM environment, in order to integrate additional protection forces.

(3) The future Modular Force requires the capability for multi-functional protection of units in all operational environments, in order to meet the mission requirements.

(4) The future Modular Force BCT and above requires the capability for AMD, CBRNE defense, response and hazard mitigation, preventive medicine units for environmental monitoring, military police for law and order and populace control, and critical site, high risk

personnel security forces in a JIM environment, in order to provide required protection capabilities to act against threats.

(5) The future Modular Force BCT and below requires the capability for engineer units in a JIM environment, in order to create bases and countermobility structures.

d. Training

(1) The future Modular Force BCT requires the capability for realistic large scale training in urban environments to prepare for an increasing requirement, in order to operate in populated areas.

(2) The future Modular Force BCT and above requires the capability to train teams to be capable of planning protection functions in a JIM environment, in order to achieve cohesive and responsive capabilities against an adversary's actions.

e. Materiel

(1) The future Modular Force BCT and division requires the capability for advanced rocket, artillery and mortar detection, warning, respond, and intercept systems in a JIM environment, in order to protect combatants and non-combatants from indirect fire threats.

(2) The future Modular Force BCT and division require the capability for precision munitions, both line-of-sight and non-line-of-sight in combat operations, in order to reduce friendly and unintended casualties.

(3) The future Modular Force BCT and division requires the capability for lightweight and mobile shelter systems with increased ballistic protection in combat operations, in order to protect Soldiers and shelter mounted and dismounted systems.

(4) The future Modular Force BCT and division requires the capability for advanced CBRN and TIM hazard detection, protection, and decontamination in a JIM environment, in order to take preventive measures, reduce casualties, and quickly recover capabilities.

(5) The future Modular Force BCT and division requires the capability for chameleon camouflage in combat operations, in order to reduce detection by the enemy.

(6) The future Modular Force BCT and division requires the capability for gap crossing and force mobility capability in a JIM environment, in order for mobility of maneuver, maneuver support, and maneuver sustainment forces.

(7) The future Modular Force BCT and division requires the capability for advanced intratheater sealift using austere facilities in a JIM environment, in order to reduce vulnerabilities by using multiple dispersed points of entry.

(8) The future Modular Force BCT and division requires the capability for improved obstacle countermeasures during movement and maneuver, in order to increase force mobility and decrease threats.

(9) The future Modular Force BCT and division requires the capability for increased mobility in combat operations, to decrease target vulnerability and enable the rapid transport of security forces, in order to prevent attacks and defeat an adversary.

(10) The future Modular Force BCT and division requires the capability for organic protection for maneuver support and maneuver sustainment units in a JIM environment, in order to maintain their security in mobile and austere bases when operating away from maneuver units.

(11) The future Modular Force BCT and division requires the capability for protection against IEDs, snipers, rocket propelled grenades, directed energy, and weapons of mass destruction in combat operations, in order to reduce casualties and loss of equipment.

(12) The future Modular Force BCT and division requires the capability to prohibit the enemy from detecting, tracking, and targeting U.S. led forces while operating in a hostile urban environment, in order to reduce their capability to inflict losses.

(13) The future Modular Force BCT and division requires the capability to reduce the threat and operational vulnerability, and avoid contamination under CBRN hazard conditions, in order to prevent or reduce casualties.

(14) The future Modular Force BCT and division requires the capability for maneuver, fires (lethal or nonlethal), or obstacles in-depth in combat, in order to protect the force.

(15) The future Modular Force division and above requires the capability for a fully modular, full spectrum, deployable integrated AMD capability for global, homeland, regional and theater defenses, in order to defeat enemy air and missile threats.

(16) The future Modular Force requires the capability for antiterrorism and force protection planning tools in a JIM environment, in order to prepare protection measures and integrate into current and future operations.

(17) The future Modular Force requires the capability for deception tools in combat operations, in order to provide protection to combatants and non-combatants by deceiving the enemy to locations and capabilities.

(18) The future Modular Force requires the capability to swiftly manage the effects of an attack in combat operations, in order to minimize impact on operations and supporting infrastructure, assess remaining capabilities, and recover from the attack.

(19) The future Modular Force division and above requires the capability to protect military and selected and designated civilian personnel from the effects of chemical, biological,

nuclear, explosives, projectiles, directed energy, and nonlethal weapons in a JIM environment, in order to reduce or eliminate casualties.

(20) The future Modular Force BCT and division requires the capability to provide active and passive protection measures through surveillance and detection, warnings to don protective gear or go to collective shelters, monitoring and assessing the degree of contamination, treatment and personnel rescue after an attack, in order to protect lives and prevent casualties.

(21) The future Modular Force requires the capability for medical surveillance and intelligence to detect, assess, and warn against health threats, use of medical countermeasures to defend against threats, and medical rehabilitative care to recover following injury and illness in a JIM environment, in order to protect military and civil populations.

(22) The future Modular Force requires the capability to protect critical facilities and infrastructure from a physical surface, sub-surface, or CBRNE attack in a JIM environment, in order to maintain essential services and capabilities.

(23) The future Modular Force division and below requires the capability to prevent, defeat, and minimize the threat of an enemy air or missile attack in a JIM environment, in order to preserve the fighting capabilities of the force.

(24) The future Modular Force division and below requires the capability to employ active and passive CBRN protection measures for use in a JIM environment, in order to protect Soldiers, platforms, and units during combat operations.

(25) The future Modular Force division and below requires the capability to neutralize hazards and restore the environment in a JIM environment, in order to preserve required resources and maintain the way of life of nations and societies.

f. Leadership and Education

(1) The future Modular Force requires the capability to understand organic and joint capabilities in a JIM environment, in order to employ interdependencies.

(2) The future Modular Force requires the capability to emulate cultural predilections, motivations, objectives, internal planning, technical and operational capabilities, and decision processes of potential adversary groups and uncommitted populace through red-teaming, in order to prepare leaders for operations in different and varying cultures.

(3) The future Modular Force BCT and below requires the capability to develop leaders with a clear understanding of the current and predicted hazard situations, capable of envisioning critical mission end states, and visualizing the sequence of events to move an installation or deployed force from its current state to those end states during formal and unit training environments, in order to prepare leaders for a changing adaptable enemy.

g. Personnel

(1) The future Modular Force requires the capability for leaders and Soldiers to execute protection missions in distributed and non-contiguous operations, in order to preserve the fighting force.

(2) The future Modular Force requires the capability for culturally attuned leaders in interagency and multi-national operations, in order to enhance unit success by leveraging local and host nation support to operations.

h. Facilities

(1) The future Modular Force BCT and above requires the capability for structures with CBRNE protective capabilities, such as over-pressure systems, low profile buildings providing decreased exposure, ballistic protection in walls and windows, and electronic shielding from remote intrusion and attack in permanent military installations, in order to protect the military and civilian workforce and their mission related equipment.

(2) The future Modular Force division and below requires the capability for biometric entry identification systems in field and garrison environments, in order to provide greater reliability in ascertaining friendly and potential enemy personnel.

(3) The future Modular Force requires the capability for advanced perimeter sensors in fixed, semi-fixed, and mobile environments, in order to provide early and accurate warning to the forces.

5-6. Information Protection

a. The wide array of electronic communications, C2 systems, and intelligence sensors must be protected from electronic warfare and cyber threats. The knowledge-based future Modular Force must protect information capabilities against intrusion and destructive attacks. Information protection will require joint interdependencies to protect all system nodes on the ground, in the air, at sea, and in space.

b. Doctrine. The future Modular Force requires the capability to understand how to safeguard critical information through integrated information operations in a JIM environment, in order to maintain viability of C2 systems.

c. Organization

(1) The future Modular Force requires the capability for modular and scaleable organizations to augment information protection requirements in a JIM environment, in order to rapidly respond to changing threats.

(2) The future Modular Force division and above requires the capability for multi-functional staffs to analyze and assess the risks to information from a variety of threats in a JIM environment, in order to recommend where to take risks and how to minimize those risks.

(3) The future Modular Force requires the capability for multi-functional protection of information in all operational environments, in order to meet the mission requirements.

d. Training

(1) The future Modular Force BCT and division requires the capability to accommodate the increasing number of information protection training tasks without a corresponding increase in time available for training in formal and unit training environments, in order to prepare for combat and non-combat operations.

(2) The future Modular Force requires the capability to train teams to be capable of planning information protection functions in a JIM environment, in order to achieve cohesive and responsive capabilities against an adversary's actions.

e. Materiel

(1) The future Modular Force requires the capability for enhanced geospatial and geo-intelligence information manipulation, management, and dissemination systems in a JIM environment, in order to provide timely and accurate information to support protection operations.

(2) The future Modular Force requires the capability for reliable communications in a JIM environment, in order to provide strong and redundant systems for information assurance.

(3) The future Modular Force BCT and below requires the capability to protect space assets, to include communication nodes, to allow commanders, units, and Soldiers free access to all space-based capabilities, in order to provide communications, sensors, and warning to forces around the globe.

(4) The future Modular Force requires the capability for access to worldwide police and intelligence database, for example, FBI, CIA, and Interpol in an interagency and multi-national environment, in order to gain information on threats.

(5) The future Modular Force requires the capability to swiftly manage the effects of an attack on information systems, in order to minimize impact on operations and supporting infrastructure, assess remaining capabilities, and recover from the attack.

(6) The future Modular Force requires the capability to protect critical facilities and infrastructure from a physical or electronic attack in a JIM environment, in order to maintain essential information capabilities.

f. Leadership and Education

(1) The future Modular Force requires the capability to operate in the requirements of space and time in a JIM environment, in order to respond to ever changing threats and situations.

(2) The future Modular Force requires the capability to understand organic and joint capabilities in a JIM environment, in order to employ interdependencies.

(3) The future Modular Force requires the capability to develop and maintain technical and tactical proficiency with protection measures in all situations, in order to preserve information for the force.

(4) The future Modular Force BCT and below requires the capability to develop leaders with a clear understanding of the current and predicted hazard situations, capable of envisioning critical mission end states, and visualizing the sequence of events to move an installation or deployed force from its current state to those end states during formal and unit training environments, in order to prepare leaders for a changing adaptable enemy.

(5) The future Modular Force requires the capability to develop leaders who can perform effectively in a complex, uncertain and dynamic operational environment across the ROMO, in order to execute protection functions and keep pace with the impact of emerging information protection technologies.

g. Personnel. The future Modular Force BCT and below requires the capability for leaders and Soldiers to conduct rapid decisionmaking at lower levels and conduct information protection measures in high tempo operations, in order to preserve the fighting capability of the force.

h. Facilities. The future Modular Force division and above requires the capability for structures with electronic shielding from remote intrusion and attack in permanent military installations, in order to protect information and its mission related equipment.

5-7. Active Protection

a. Active protection systems detect and act against threats to Soldiers, platforms, units, fixed, semi-fixed, and mobile situations to allow for mission accomplishment. The use of automated systems, robotics, and sensors are essential for future active protection. The required solutions for active protection are listed below.

b. Doctrine

(1) The future Modular Force BCT and above requires the capability to understand how to share protection information horizontally and vertically via battle command systems in a JIM environment, in order to prevent and defeat enemy attacks.

(2) The future Modular Force division and above requires the capability to understand how to employ sensors, automated protection systems, and robotics in a combat environment, in

order to achieve situational understanding and assist the ability to decide and act against hostile forces.

c. Organization. The future Modular Force BCT and below requires the capability for organic teams to emplace and operate active protective systems in combat situations, in order to detect and destroy enemy weapons and systems.

d. Training

(1) The future Modular Force BCT requires the capability to receive updated or new training support packages for improved sensor, automated, and robotic capabilities in a formal and unit training setting, in order to respond to a changing threat.

(2) The future Modular Force BCT and below requires the capability to train teams to be capable of planning sensor, automated, and robotic protection activities in a JIM environment, in order to achieve cohesive and responsive capabilities against an adversary's actions.

e. Materiel

(1) The future Modular Force requires the capability to observe, monitor, and track actual and potential hostile activities aimed at people, assets, and information in a JIM environment, in order to detect and prevent enemy actions.

(2) The future Modular Force division and below requires the capability for persistent aerial presence to detect enemy activities in all weather and spectrum environments, in order to provide rapid and timely information to decisionmakers.

(3) The future Modular Force BCT and below requires the capability for sensors, explosive device neutralization, and offensive weapon platform systems mounted on robotics that can operate in all terrain, weather, and spectrum environments, in order to augment and assist Soldiers in protection operations.

(4) The future Modular Force BCT and above requires the capability to integrate air and ground sensors, C2, and intelligence, surveillance, and reconnaissance systems in all weather, terrain, and spectrum environments, in order to provide accurate and timely information.

(5) The future Modular Force requires the capability to sense and detect lethal and nonlethal, energy based, and passive and active enemy systems in all environments, in order to allow for decisions on countermeasures and offensive actions.

(6) The future Modular Force division and below requires the capability to identify threats at adequate stand-off distance in all environments to allow for appropriate reaction time by friendly forces, in order to prevent or defeat a threat.

(7) The future Modular Force requires the capability for networked system of sensors to identify enemy activity and weapons firing in all environments to automatically cue on board active protection systems, in order to prevent or neutralize a threat.

(8) The future Modular Force requires the capability to detect and identify CBRN hazards in the air, water, food, or soil, on personnel, equipment or facilities in all environments, in order to determine the state of those hazards and take preventive measures.

(9) The future Modular Force division and below requires the capability to secure air corridors using on board active and passive protection systems on aircraft in flight, in order to detect and defeat enemy threats to the aircraft.

(10) The future Modular Force division and below requires the capability to provide warning and employ protective systems to counter enemy rockets, artillery, and mortars in all environments, in order to destroy the enemy rounds before they strike the intended target.

(11) The future Modular Force requires the capability to inform subordinate organizations of potential and actual threats in a rapid and clear manner, in order to implement preventive measures.

(12) The future Modular Force requires the capability to provide CBRN and TIM detection in all environments, in order to implement consequence management operations.

f. Leadership and Education

(1) The future Modular Force BCT and above requires the capability to understand organic and joint capabilities, in order to employ them.

(2) The future Modular Force BCT and below requires the capability to develop and maintain technical and tactical proficiency with automated, robotic, and sensor capabilities, in order to protect the force.

g. Personnel

(1) The future Modular Force BCT and below requires the capability for leaders and Soldiers to conduct rapid decisionmaking at lower levels to conduct protection measures in high tempo operations, in order to preserve the fighting capability of the force.

(2) The future Modular Force requires the capability for leaders and Soldiers to make decisions between the use of nonlethal and lethal capabilities in a JIM environment, in order to reduce unintended casualties and destruction.

h. Facilities

(1) The future Modular Force BCT and above requires the capability for biometric entry identification systems in field and garrison environments, in order to provide greater reliability in ascertaining friendly and potential enemy personnel.

(2) The future Modular Force requires the capability for advanced perimeter sensors in fixed, semi-fixed, and mobile environments, in order to provide early and accurate warning to the forces.

5-8. Multi-Partner Protection

a. Multi-partner protection considerations include those actions outside the internal future Modular Force's capabilities found in paragraphs 5-2 through 5-6. They include joint mission requirements, interagency unique considerations, and operations conducted within a multi-national environment, to include friendly and host nations. The required future capabilities for multi-partner protection are listed below.

b. Doctrine

(1) The future Modular Force requires the capability to understand interdependent protection capabilities in a joint environment, in order to maximize forces and resources while providing maximum protection.

(2) The future Modular Force requires the capability to conduct effective civil and military relationships, and C2 between multi-national partners in a JIM environment, in order to provide all around protection for all aspects of operations.

(3) The future Modular Force requires the capability to operate within law and policy in a domestic environment, in order to properly employ military forces in the U.S.

(4) The future Modular Force division and below requires the capability for the employment of nonlethal and scaleable effects in combat and non-combat situations to understand the application of appropriate force, in order to eliminate undesired casualties.

(5) The future Modular Force requires the capability for development of systems and procedures with interagency and multi-national civil and military organizations in an interagency and multi-national environment, in order to integrate into future Modular Force detection.

(6) The future Modular Force BCT and below requires the capability to protect logistical installations, and air and ground lines of communication in a JIM environment, in order to support maneuver forces.

(7) The future Modular Force maneuver support organization requires the capability to manage the security and protection of logistical installations, intermediate staging, and forward

operating bases, to include air and ground lines of communication in a JIM environment, in order to efficiently use resources.

c. Organization

(1) The future Modular Force requires the capability for modular and scaleable organizations to augment protection requirements in a JIM environment, in order to rapidly respond to changing threats.

(2) The future Modular Force requires the capability for scaleable C2 system in a JIM environment, in order to integrate additional protection forces.

(3) The future Modular Force requires the capability for a C2 organization in a JIM environment to integrate various interagency and multi-national partners in the structures and organizations, in order to provide seamless operations.

(4) The future Modular Force requires the capability for multi-functional staff to analyze and assess the risks from a variety of threats in a JIM environment, in order to recommend where to take risks and how to minimize those risks.

(5) The future Modular Force requires the capability for multi-functional protection of units in all operational environments, in order to meet mission requirements.

(6) The future Modular Force BCT and above requires the capability for AMD, CBRNE defense, response and hazard mitigation, preventive medicine units for environmental monitoring, military police for law and order and populace control, and critical site and high risk personnel security forces in a JIM environment, in order to provide required protection capabilities to act against threats.

(7) The future Modular Force BCT requires the capability for engineer units in a JIM environment, in order to create bases and countermobility structures.

d. Training

(1) The future Modular Force requires the capability for Combat Training Centers to replicate complex JIM environments and to embed JIM partners in protection tasks and considerations during training, in order to support joint interdependence requirements.

(2) The future Modular Force BCT and above requires the capability to integrate protection capabilities into joint training exercises, in order to support joint interdependence requirements.

(3) The future Modular Force BCT and below requires the capability to access intelligence at battalion and below levels in combat, in order to employ protection capabilities in a timely manner.

(4) The future Modular Force BCT and below requires the capability to train law enforcement agencies with lethal and nonlethal capabilities in an interagency and multi-national environment, in order to protect the civil populace and reduce unintended casualties.

e. Materiel

(1) The future Modular Force requires the capability for nonlethal and scaleable effect in combat and non-combat situations to apply the appropriate force, in order to eliminate undesired casualties.

(2) The future Modular Force division and above requires the capability to observe, monitor, and track actual or potential hostile, criminal, and terrorist related activities that pose a threat to U.S. forces in a JIM environment, in order to prevent their adverse impact on current and future military operations.

(3) The future Modular Force division and above requires the capability for a fully modular, full spectrum, deployable, integrated AMD capability for global, homeland, regional, and theater defenses, in order to defeat enemy air and missile threats.

(4) The future Modular Force BCT and below requires the capability to prohibit the enemy from detecting, tracking, and targeting U.S. led force while operating in a hostile urban environment, in order to reduce their capability to inflict losses.

(5) The future Modular Force division and below requires the capability to promote recovery operations during an attack, and resume essential operations after an attack, in order to sustain operations and restore personnel and equipment to pre-incident operations.

f. Leadership and Education

(1) The future Modular Force requires the capability to operate in the requirements of space, time, and complexities of a JIM environment, in order to respond to ever changing threats and situations.

(2) The future Modular Force BCT and above requires the capability to understand organic and joint capabilities in a JIM environment, in order to employ interdependencies.

(3) The future Modular Force requires the capability to conduct operations when faced with ambiguity and uncertainty for protection requirements in a JIM environment, in order to make timely and effective decisions under stress.

(4) The future Modular Force requires the capability to develop and maintain technical and tactical proficiency with protection measures in all situations, in order to preserve to force.

g. Personnel

(1) The future Modular Force requires the capability for leaders and Soldiers to execute protection missions in distributed and non-contiguous operations, in order to preserve the fighting force.

(2) The future Modular Force requires the capability for culturally attuned leaders in interagency and multi-national operations, in order to enhance unit success by leveraging local and host nation support to operations.

(3) The future Modular Force BCT requires the capability for leaders and Soldiers to conduct rapid decisionmaking at lower levels to conduct protection measures in high tempo operations, in order to preserve the fighting capability of the force.

(4) The future Modular Force requires the capability for leaders and Soldiers to make decisions between the use of nonlethal and lethal capabilities in a JIM environment, in order to reduce unintended casualties and destruction.

h. Facilities

(1) The future Modular Force division and below requires the capability for structures with CBRNE protective capabilities, such as over-pressure systems, low profile buildings providing decreased exposure, ballistic protection in walls and windows, and electronic shielding from remote intrusion and attack in permanent military installations, in order to protect the military and civilian workforce and their mission related equipment.

(2) The future Modular Force BCT and above requires the capability for biometric entry identification systems in field and garrison environments, in order to provide greater reliability in ascertaining friendly and potential enemy personnel.

(3) The future Modular Force requires the capability for advanced perimeter sensors in fixed, semi-fixed, and mobile environments, in order to provide early and accurate warning to the forces.

(4) The future Modular Force division and above requires the capability to develop and assist in the implementation of protection standards for DIB facilities within the U.S., in order to ensure the continued production of warfighting material.

Chapter 6
Conclusion

a. The capability to protect people, assets, and information will be a continuous challenge. Protection must provide a complete set of capabilities to protect the Soldier, platforms, units;

fixed, semi-fixed, and mobile assets and information; and JIM partners. Layered protection must be combined with mutually supporting and redundant capabilities.

b. The future Modular Force must protect itself throughout all aspects of campaigns. It must provide protection to friends and allies, as well as, protection of the homeland. Protection can best be achieved through mobility by maintaining the initiative in operations, by attacking potential threats first, destroying enemy capabilities, and by applying protection through joint interdependence.

c. Although traditional passive elements of protection, such as better protected platforms, dispersion, and use of terrain, still have utility on the future battlefield, protection for the future Modular Force must not rely solely on passive capabilities. The Modular Force should increase utilization of active capabilities, in order to counter the adversary before threats are capable of effecting friendly operations. Protection can best be achieved with active capabilities that detect a threat at the earliest moment and act against it.

d. The future Modular Force is supported by the greatest technology in the world and must leverage it, in order to provide the innovative protect capabilities of 360° layered, overlapping, and networked resources that protect against traditional, irregular, catastrophic, and disruptive challenges. These advanced solutions to protect people, assets, and information must be considered early in the design, development, and procurement process and applied across the future Modular Force. It is essential that future considerations for protection use imagination, stay in front of the challenge, and rapidly provide comprehensive solutions.

Appendix A
References

Section I
Required Publications

Protection Joint Functional Concept.

The Joint Operational Environment: The World Through 2030 and Beyond.

TRADOC Pam 525-3-0
The Army in Joint Operations, Version 2.0.

TRADOC Pam 525-3-1
The Army Operating Concept for Operating Maneuver 2015-2024.

TRADOC Pam 525-3-2
The Army Concept for Tactical Maneuver 2015-2024.

Section II
Related Publications

FM 3-0
Operations.

Homeland Security Joint Operating Concept.

Joint Pub 1-02
DOD Dictionary of Military and Associated Terms.

National Defense Strategy of the United States.

National Military Strategy to Combat Weapons of Mass Destruction.

Strategic Deterrence Joint Operating Concept.

TRADOC Pam 525-2-1
The United States Army Functional Concept for See 2015-2024.

TRADOC Pam 525-3-3
The United States Army Functional Concept for Battle Command 2015-2024.

TRADOC Pam 525-3-4
The United States Army Functional Concept for Strike 2015-2024.

TRADOC Pam 525-3-5

TRADOC Pam 525-3-6

The United States Army Functional Concept for Move 2015-2024.

TRADOC Pam 525-4-1

The United States Army Functional Concept for Sustain 2015-2024.

TRADOC Pam 525-66

Force Operating Capabilities.

TRADOC Pam 525-99

Concept for Nonlethal Capabilities in Army Operations.

U.S. National Response Plan.

Appendix B Assumptions

a. An assumption is a supposition on the current situation or a presupposition on the future course of events, either, or both assumed to be true in the absence of positive proof. Valid assumptions are necessary in concepts to define the strategic and operational context. The assumptions listed below describe relevant future conditions that are likely, but not certain. Invalidity of the key assumptions, as determined through continuous experimentation, wargaming, and assessment, will cause a fundamental revision of this concept. For the detailed list of assumptions, see TRADOC Pam 525-3-0, TRADOC Pam 525-3-1, and TRADOC Pam 525-3-2.

b. The Army's capstone and operating concepts list several key assumptions. Those lists include assumptions concerning strategic issues, joint, and Army transformation, and the complexity of the future operating environment. Those assumptions represent the fundamental boundary conditions that define the context in which those concepts have been developed. The *Protect* concept, in providing amplification to the capstone and operating concepts, uses those same assumptions as a baseline, as well as, identifies additional assumptions for the protect functional area.

c. Key assumptions specific to the *Protect* functional concept are-

- Protection of the GIG will be fundamental to future Modular Force operations.
- The interruption or destruction of the knowledge network will adversely affect the capabilities of the future Modular Force to maintain its agility, speed, and precise power.
- Joint and Army organizations will enable integration of joint protection capabilities at lower tactical levels.
- Simultaneous, continuous, and distributed operations will be conducted by the future Modular Force to create a tempo and multiple dilemmas to overwhelm an adversary's ability to efficiently respond.
- Adversaries will not employ routine use of CBRN weapons.
- The future Modular Force will not conduct large scale ground combat in the homeland.
- The U.S. will maintain capability to achieve air and maritime superiority in any theater.
- Advances in nonlethal and scaleable effects will reduce civilian casualties.

d. Additionally, any degradation of the capabilities discussed in this concept would have an adverse effect on the future Modular Force and would severely impact the achievement of its full potential. The lack of sufficient funding or the failure to realize required technological advances within this concept's timeframe would require the continued use of legacy systems and procedures, and therefore would not adequately solve the stated military problem. Any significant loss of capabilities through enemy action would require the use of alternative systems and procedures to continue operations. The following are major degradation concerns-

- Concern #1: Continued reliance on legacy capabilities will cause the Army to fall behind enemy advances in lethality and development of niche capabilities, increasing the potential for greater losses in personnel and equipment.

- Concern #2: Increased vulnerability to the use of WMD will cause catastrophic effects on the future Modular Force and our JIM partners. Of special concern is the potential loss of life and effects on the American way of life if WMD is used on the homeland.
- Concern #3: The future Modular Force will rely on knowledge management through a network enabled battle command system. The interruption or destruction of the knowledge network will adversely affect the capabilities of the Army to maintain its agility, speed, and precise power.

Glossary
Section I

Abbreviations

AMD	air and missile defense
BCT	brigade combat team
CBRN	chemical, biological, radiological, and nuclear
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosives
CIA	Central Intelligence Agency
COA	course of action
C2	command and control
DIB	defense industrial base
DOD	Department of Defense
DOTMLPF	doctrine, organizations, training, materiel, leadership and education, personnel, and facilities
FBI	Federal Bureau of Investigation
GIG	global information grid
IED	improvised explosive device
Interpol	International Criminal Police Organization
ISB	intermediate staging base
JF	joint force(s)
JIM	joint, interagency, and multi-national
JOA	joint operations area
ROMO	range of military operations
TIM	toxic industrial materials
TRADOC	U.S. Army Training and Doctrine Command
WMD	weapons of mass destruction

Section II

Terms

capability

The ability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks. (CJCSI 3170.01E Glossary).

combating WMD

The integrated and dynamic activities of the DOD across the full range of counterproliferation, non-proliferation, and consequence management efforts to counter WMD, their means of delivery, and related materials. (National Military Strategy to Combat WMD).

data

Information without context. Raw data is a signal that has not been processed, correlated, integrated, evaluated, or interpreted in any way.

full spectrum operations

Military actions that can extend across the entire ROMO from major combat operations to Stability Operations. ROMO and full spectrum operations can be considered synonyms. They can also be described in terms of offensive, defensive, stability, and civil support operations.

functional concept

The amplification of a particular function (such as counterair) or description of how to employ a system or conduct a task (such as time-sensitive targeting). Functional concepts rely on integrating concepts for their operational context. A functional concept may be specific to a particular integrating concept or it may apply more broadly to multiple integrating concepts. Individual functional concepts provide the detail required for specific experiments. As with integrating concepts, candidate functional concepts should describe their relationship to the desired operational capabilities of the future and establish a benchmark against which to measure improvement.

global information grid (GIG)

The globally interconnected, end-to-end set of information capabilities, associated processes, and personnel for collecting, processing, storing, disseminating, and managing information on demand to warfighters, policymakers, and support personnel.

information

Facts, data, or instructions in any medium or form with context that is comprehensible to the user.

information superiority

The degree of superiority in the information domain that permits the conduct of operations without effective opposition.

knowledge

Data that has been analyzed to provide meaning and value. Knowledge is various pieces of the processed data that have been integrated and interpreted to begin building a picture of the situation.

maneuver support

Those capabilities that enable the maneuver commander's freedom of action and protect the force. Maneuver support provides a wide range of integrated actions, both proactive and defensive, that support uninterrupted momentum, allow maneuver forces to preserve combat power so that it may be best applied at decisive points and times, and foster rapid transitions in operations. (Maneuver Support Center).

multi-national organizations

A collective heading for intergovernmental and international organizations.

network-centric operations

An information superiority-enabled concept of operations that generates increased combat power by networking sensors, decisionmakers and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization. In essence, network-centric operations translates information superiority into combat power by effectively linking knowledgeable entities in the operating environment.

non-governmental organizations

Transnational organizations of private citizens that maintain a consultative status with the Economic and Social Council of the United Nations. Non-governmental organizations may be professional associations, foundations, multi-national businesses, or simply groups with a common interest in humanitarian assistance activities (development and relief).

precision engagement

The ability of JFs to locate, surveil, discern, and track objectives or targets; select, organize, and use the correct systems; generate desired effects; assess results; and reengage with decisive speed and overwhelming operational tempo as required, throughout the ROMO. (Joint Vision 2020).

self-healing minefield

The self-healing minefield is an antitank landmine system that does not rely on anti-personnel landmines for dismounted breach protection. Instead the self-healing minefield employs a novel breach response mechanism that can determine both mounted and dismounted enemy assaults on the minefield and respond to maintain obstacle integrity.

situational awareness (SA)

Knowledge and understanding of the current situation which promotes timely, relevant, and accurate assessment of friendly, enemy, and other operations within the battlespace in order to facilitate decisionmaking. An informational perspective and skill that fosters an ability to determine quickly the context and relevance of unfolding events. [Marine Corps; FM 3-0]. SA is knowledge of the immediate present environment, including knowledge of mission, enemy, terrain and weather, troops and support available, time available, civil considerations. More simply, it is knowing what is happening around you now. In the context of the cognitive hierarchy, situational awareness is at the knowledge level. [FM 5-0.1].

situational understanding (SU)

The product of applying analysis and judgment to relevant information to determine the relationships of mission, enemy, terrain and weather, troops and support available, time

available, civil considerations to facilitate decisionmaking. (FM 3-0) Knowledge and understanding of the current situation which promotes timely, relevant, and accurate assessment of friendly, enemy, and other operations within the battlespace in order to facilitate decisionmaking. An informational perspective and skill that fosters an ability to determine quickly the context and relevance of unfolding events. (FM 1-02).

synchronization

The arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time; and in the intelligence context, application of intelligence sources and methods in concert with the operation plan. (JP 1-02 and JP 2-0).

toxic industrial chemicals

Any chemical substance that can render forces ineffective under normal mission-oriented protective posture conditions. Primarily an inhalation hazard, but forces can receive a dosage through ingestion or percutaneously. (National Military Strategy to Combat WMD 13 FEB 06).

toxic industrial materials (TIM)

Any substance that, in a given quantity, produces a toxic effect in exposed personnel through inhalation, ingestion, or percutaneously. (National Military Strategy to Combat WMD).

understanding

Knowledge that has been synthesized and had judgments applied to it in the context of a specific situation. Understanding reveals the relationships among the critical factors in any situation.

WMD consequence management

Actions to reduce the vulnerability to and mitigate the effects of a WMD attack and to restore essential operations and services at home and abroad. (National Military Strategy to Combat WMD).

WMD elimination

Military operations to locate, identify, secure, render safe programs and related capabilities in hostile or uncertain environments, disable, and destroy an adversary's WMD. (National Military Strategy to Combat WMD).

WMD interdiction

Operations to disrupt the transit of WMD, its delivery systems and associated components, technologies, and expertise between states, and between state and non-state actors in any environment. (National Military Strategy to Combat WMD).

weapons of mass destruction (WMD)

Weapons capable of a high order of destruction and of being used in a manner so as to destroy large numbers of people. Weapons of mass destruction can be nuclear, biological, chemical, and radiological weapons, but exclude means of delivery of weapons where such means is a separable and divisible part of the weapon.” (National Military Strategy to Combat WMD).

FOR THE COMMANDER:

OFFICIAL:

JOHN M. CURRAN
Lieutenant General, U.S. Army
Director, Army Capabilities Integration
Center



RANDALL L. MACKEY
Colonel, GS
Chief Information Officer

