

Concepts & Issues 2001



*Forging the
Future Marine Corps*

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A Message From The Commandant Of The Marine Corps



The Marine Corps embraces the new century with confidence; poised to meet both the crises of today and the challenges of tomorrow. The clear lesson of the past is that this focus on current and future requirements is essential if the Corps is to continue to fulfill its broad responsibilities.

Our recently released Vision Statement provides a clear articulation of goals and corresponding priorities to ensure our continued readiness.

Affecting all elements of our Corps, the vision has given renewed momentum to our efforts to continuously transform to meet evolving national security needs.

While the Corps will adapt – just as it always has – to a changing environment, the quality and fidelity of the individual Marine will remain constant. Marines are the essential wherewithal with which the Corps accomplishes its assigned missions. Their flexibility, strength of character, and warfighting abilities are the keys to our success. Accordingly, the focus of our programs is to enhance their battlefield effectiveness by providing them the necessary tools to enable them to succeed. This “equip the man, not man the equipment” philosophy has long been at the center of our programmatic efforts.

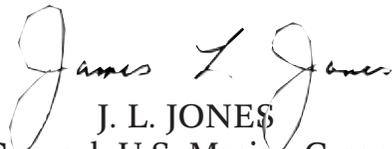
For much of the last decade the Corps was compelled to slow the pace of modernization in order to maintain current readiness. It was a problem not specific to the Corps, as all of the Armed Forces faced the same challenge in an era of reduced budgets and increased operational commitments. While recent budget increases have helped, we still struggle to modernize after the long “procurement holiday.” Replacing our old and worn out systems is an absolute priority.

Integral to our focus on our Marines is the realization that their morale and readiness hinge on their quality of life and that of their families. Consequently, many of our initiatives are intended to strengthen this critical aspect of our Corps. The ongoing fiscal challenges we face have not left these efforts untouched, especially the recapitalization of our infrastructure.

Concepts and Issues 2001 articulates our modernization requirements—presenting an overview of our plans to give Marines the best our nation can provide. It offers a “once across the Corps” perspective that includes a description of our conceptual view of warfighting, an overview of the operations of the past year, and an examination of the specific programs that will provide our Marines technologically superior weapons, platforms, systems and equipment.

Just as it has been since 1775, the Marine Corps remains prepared to fulfill its role in the pursuit of America's national security. Accordingly, *Concepts and Issues 2001* expresses our goals and priorities to ensure our continued readiness.

Semper Fidelis,

A handwritten signature in cursive script that reads "James L. Jones". The signature is written in black ink and is positioned above the printed name and title.

J. L. JONES
General, U.S. Marine Corps



Chapter 1

Marines – Ready Today – Relevant, Capable and Ready Tomorrow

As we enter the 21st century, the enduring value of the Marine Corps' strategic perspective and role mandated by the Congress remains more relevant than ever before. Once stable nation states are imploding. Ethnic hatred, religious strife and clan warfare serve as tinder for transnational events. Coupled with this is a radical shift in world demographics, economic interdependence, and technological diffusion. In short, it is a time of great uncertainty and instability. Today, Marines, together with the Navy, are uniquely suited to meet these challenges. Marines are a strong expeditionary, combined-arms force in readiness; forward, versatile, responsive to crisis; capable of sustained operations from the sea; and structured to enter forcibly, expand rapidly and fight decisively. But as good as we are today, the Marine Corps is dedicated to being better tomorrow. Innovation, ingenuity, and a willingness to adapt to changes on the emerging battlefield will take the Corps well into the century fully prepared to immediately project power and influence events anywhere to protect U.S. interests.

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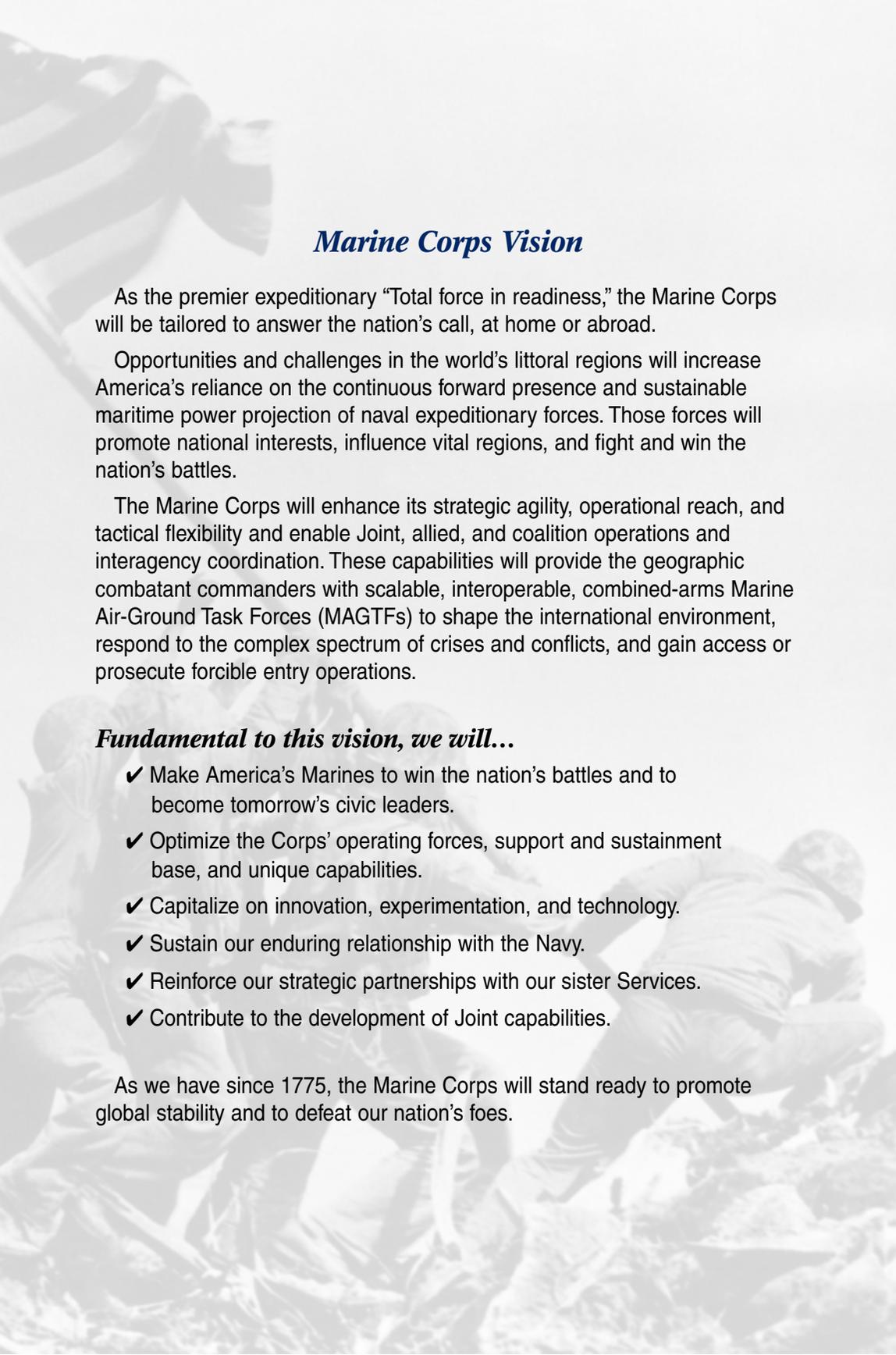
The 2001 Quadrennial Defense Review marks the sixth time in less than a decade that the defense establishment has embarked on a comprehensive reassessment of our strategy, forces, and resources. As we pursue efforts to streamline and update our capabilities for the world that lies ahead it is essential that our national strategy account for the fact that the United States is a maritime nation with both global responsibilities and interests. To protect and defend these interests, the complementary concepts of overseas presence and power projection should be imperatives of any U.S. strategy. In addition, to execute such a strategy, U.S. Forces must not only be militarily effective, but also politically useful across the widest possible range of operations. Forward deployed naval expeditionary forces are well positioned to satisfy these requirements. The 21st century will place a higher premium on their proven ability to mitigate uncertainties, ensure strategic balance and preserve America's global leadership.

As we confront the uncertain world of the 21st century, the Marine Corps' strategic and expeditionary posture remains sound and serves both as a guide for what the Corps does for the nation and a foundation for forging the Corps of the future. The **Marine Corps Vision** and **Marine Corps Strategy 21** build upon the Corps' unique core competencies of expeditionary readiness, versatile combined-arms operations and naval character to ensure that the Corps remains ready, relevant, and capable of providing superb forward presence and crisis response well into the century.

“A versatile, Expeditionary Force in readiness...A balanced Force for a Naval Campaign and a Ground and Air Striking Force...Always at a high state of combat readiness...Ready to suppress or contain international disturbances short of war...To be the most ready when the nation generally is least ready.”

*House Armed Services Committee
Congress of the United States, 1952*





Marine Corps Vision

As the premier expeditionary “Total force in readiness,” the Marine Corps will be tailored to answer the nation’s call, at home or abroad.

Opportunities and challenges in the world’s littoral regions will increase America’s reliance on the continuous forward presence and sustainable maritime power projection of naval expeditionary forces. Those forces will promote national interests, influence vital regions, and fight and win the nation’s battles.

The Marine Corps will enhance its strategic agility, operational reach, and tactical flexibility and enable Joint, allied, and coalition operations and interagency coordination. These capabilities will provide the geographic combatant commanders with scalable, interoperable, combined-arms Marine Air-Ground Task Forces (MAGTFs) to shape the international environment, respond to the complex spectrum of crises and conflicts, and gain access or prosecute forcible entry operations.

Fundamental to this vision, we will...

- ✓ Make America’s Marines to win the nation’s battles and to become tomorrow’s civic leaders.
- ✓ Optimize the Corps’ operating forces, support and sustainment base, and unique capabilities.
- ✓ Capitalize on innovation, experimentation, and technology.
- ✓ Sustain our enduring relationship with the Navy.
- ✓ Reinforce our strategic partnerships with our sister Services.
- ✓ Contribute to the development of Joint capabilities.

As we have since 1775, the Marine Corps will stand ready to promote global stability and to defeat our nation’s foes.

Today's Vision – Tomorrow's Reality

“ By far the most powerful means for dealing with planning uncertainties is through what has become generally recognized as vision. An institutional vision, by clarifying ‘an organization’s essential sense of identity and purpose,’ can resolve many uncertainties by making them irrelevant or inconsequential to the institution’s sharply defined purposes...”

*Carl Builder and James Dewar
Parameters, 1994*

The Marine Corps vision — rooted in our traditions and proven capabilities, yet reflective of emerging requirements of this new era — serves several purposes. It states in fundamental terms who we are, what we will be and, most importantly, provides a unifying statement of our strategic challenges, opportunities, and priorities (see facing page). Further, it guides our institutional efforts and provides a durable and flexible expression of how we view tomorrow. The Marine Corps vision does not prescribe radical change or mandate wholesale transformation - with good reason. Today's Corps continues to provide the nation an expeditionary total force in readiness that is versatile, adaptable, and powerful. Our long history of successful innovation and experimentation bear witness to our willingness to embrace change to ensure our continued viability. Consequently, thanks to the foresight of past visionaries, we have not been compelled to change direction and reinvent ourselves to meet emerging challenges. Through the campaign outlined in ***Marine Corps Strategy 21***, we will continue to aggressively exploit and evolve today's highly capable Marine expeditionary forces and, at the same time, realize the benefits of steady investments in new capabilities emerging from advanced technology that will produce a dramatic increase in the Corps' combat power. This approach will enable the Marine Corps to remain the nation's premier expeditionary force while preparing to meet the complex challenges of tomorrow.



Figure 1-1

Marine Corps Strategy 21

Marine Corps Strategy 21 describes our axis of advance into the 21st century and focuses our institutional efforts and resources toward a common objective. It is by design a broad axis that will permit adaptation to the complex challenges adversaries pose in the domestic, international, and physical environments. Drawn from the strategic guidance contained in the **National Security Strategy**, **National Military Strategy**, **Joint Vision 2020**, and **Forward...From the Sea**, and incorporating the Marine Corps' vision and warfighting philosophy, **Marine Corps Strategy 21** provides the framework necessary to build a highly capable future Corps. Building upon its core competencies and heritage of operational excellence and capitalizing on technology, the strategy describes the direction in which the Marine Corps will evolve today's capable force into a future force with enhanced capabilities.

Figure 1-1 shows the major elements of the campaign plan for achieving a Marine Corps forged to meet future contingencies. To focus and unify efforts, the Marine Corps' vision and strategy identify the critical goals required to enhance the Corps' strategic ability, operational reach, and tactical flexibility. Warfighting concepts support our overarching Expeditionary Maneuver Warfare concept and provide the operational context for the development of enhanced capabilities. These efforts will guide the evolutionary process of experimentation, and enable effective exploitation of innovative concepts and

technology, for which the Marine Corps has a long and distinguished heritage of achievement. Together, the vision and strategy will touch every aspect of our Corps and, most importantly, promote a synergy of effort to ensure that the Marine Corps remains prepared and capable for future conflict.

Strategic Environment

The 21st-century security environment will be characterized by instability and conflict, dynamic political alliances, and shifting economic power. Navy and Marine Corps expeditionary forces — integrated air, land, and sea combined-arms units — are ideally suited to meet these challenges. They are powerful instruments of national policy and provide the National Command Authorities with a multitude of diplomatic and military options to support U.S. foreign policy initiatives.



Figure 1–2

The Challenge – An Uncertain Future

Today, regional powers, rogue elements, and non-state actors pose both conventional and non-traditional security challenges. Regional and internal instability will create situations where ethnic, economic, social, and environmental stresses accentuate violence. Multiple belligerents and a blurring of the distinctions and national affiliations among terrorist groups, sub-national factions, insurgent groups, and international criminals will create an environment where a direct attack is often the least likely course of action. Further, weapons of mass destruction, terrorist acts, and information attacks will exact an inordinate price for small lapses in intelligence collection or operational planning. As an expeditionary, task-organized, combined-arms force, we are prepared to promote peace and stability or, if required, defeat our nation’s adversaries across the entire spectrum of conflict. Figure 1–2 depicts challenges of the future.

The Opportunity – Flexible, Adaptive Naval Forces

To meet the threat demands of the new century, the National Military Strategy (NMS) calls for flexible and multi-mission capable forces to respond to the full conflict spectrum. Furthermore, it stresses the need for Joint Forces that can address multiple small scale contingency operations, and that are able to transition rapidly from peacetime operations to full scale conflict. Naval — Navy and Marine Corps — expeditionary forces are ideally suited to meet these requirements today, and will be more so tomorrow. Marine Corps Strategy 21 fosters an organization that is proactive and adaptable and that can take advantage of opportunities, overcome challenges, and prudently employ the men, women and resources entrusted to it.

As the nation's premier expeditionary total force in readiness, the Marine Corps is prepared to operate anywhere our national interests require. As the leading element within a Joint Force, our forces can respond to any level of conflict in the execution of National Command Authorities taskings. Because the Navy-Marine Corps team operates from the sea, we are less encumbered by the political constraints often encountered by forces tied to land-based infrastructure. The only invitation we require to move to a crisis area is a request from the geographic combatant commander and an order from the National Command Authorities. Amphibious and maritime prepositioning forces play an ever-increasing role in supporting the attainment of our national objectives while protecting our national interests. As our operational reach increases so does the depth and degree to which we can influence events ashore. Whether supporting stability through forward presence and engagement, reducing human suffering due to natural or man-made disasters, or winning battles, our unique capabilities offer the nation an unparalleled ability to seize opportunities and respond to challenges. Finally, as the number of overseas bases declines and the number of U.S. military



personnel permanently stationed overseas dwindles, exploiting the versatility, sea-based agility, and rapid responsiveness of Navy and Marine Corps forces becomes an imperative.

Also required by the NMS are forces that can effectively operate as part of a larger Joint Force. The Marine Corps is ideally suited for Joint, allied, and coalition warfare. With our experience in coordinating the multidimensional elements of our air-ground task forces and our close relationship with the Navy, Marines understand the need for, and the synergy behind Joint and multinational operations. Further, Marine Corps Strategy 21 fully supports Joint Vision 2020 which guides the evolution of capabilities across all Services toward a single goal: full spectrum dominance.

Core Competencies – The Building Blocks

The Marine Corps provides forces capable of successful forward presence and power projection operations. The Corps' primary role is to provide operating forces of combined-arms, including integrated aviation and logistical components, for service as part of a naval expeditionary force. Our established success in this role is critically dependent upon unique Marine Corps competencies. Enhancement of these "building blocks" of capability is the primary means by which the Corps will achieve the objectives of the vision and meet future security challenges.

Ready to Fight and Win: Every Marine and Marine unit is ready to rapidly task-organize, and deploy, from CONUS or while forward deployed, to respond to and contain crises or, if necessary, to immediately engage in sustained combat operations.

Expeditionary Culture: Marines are prepared to deploy into diverse, austere, and chaotic environments on short notice and accomplish assigned missions using our unique command, control, and logistic capabilities to operate independently of existing infrastructure. These unique capabilities allow Marine units to either lead or enable Joint, allied, or coalition operations, and interagency coordination.

Combined-Arms Operations: Marines fight as air-ground task forces — integrated organizations of air, ground, and logistics forces under a single commander. The MAGTF commander fights a single battle that unites and enhances the capabilities of his force, whose synergistic whole is exponentially greater than the sum of its parts.

Task-Organized: MAGTFs provide combatant commanders with forces that are tailored to meet specific mission requirements from forward presence and peacetime engagement to sustained operations ashore in a major theater war. Every MAGTF represents a reservoir of scalable combat power for today's fight combined with the ability to reconfigure rapidly, based on a changing situation, to provide the right force for the next mission/fight.

Reserve Integration Expertise: Ready, rapidly responsive Marine Reserve forces are a vital part of the Marine Corps and provide depth, flexibility, and sustainment. They are fully integrated into the active forces for mission accomplishment across the complex spectrum of crises and conflicts.

Forcible Entry From the Sea: Together, the Navy and Marine Corps provide the nation with its primary capability to project and sustain power ashore in the face of armed opposition. Amphibious forces reinforced, if required, by maritime prepositioning forces allow the United States global access to protect our interests and reassure allies that we have the ability to come to their aid.

Marines are Naval in Character: In customs, traditions, and language, the Marine Corps' heritage and future are tied closely to the Navy. We are equally at home ashore or afloat, in combat, or in other expeditionary operations.

Joint Competency: Whether first on the scene, part of, or leading a Joint or multinational force, Marines instinctively understand the logic and synergy behind Joint and combined operations. Based on our experience operating as combined-arms, multidimensional MAGTFs, Marines readily integrate into, and operate as part of, a Joint or multinational force.

Operational Competencies: The Marine Corps' unique operational capabilities of responsiveness, tactical flexibility, interoperability, lethality, and staying power have allowed it to excel on the battlefield for over 50 years. They will continue to provide a sound foundation for the development of capabilities necessary to prevail on the complex battlefields of the future.

The Way Ahead

Marine Corps Strategy 21 established three major goals to achieve the objectives of our vision.

- Making America's Marines — To win our nation's battles and create quality citizens.

- Optimizing the Corps' operating forces support and sustainment base.
- Capitalizing on innovation, experimentation, and advanced technology.

Associated with each of these goals are a number of desired “ends”. While the strategy does not delineate how we intend to achieve these “end states”, they are nonetheless critical to strategy development for they align people and activities with strategic objectives. In other words, the “end states” are an energizing force for moving the Corps forward. They identify opportunities for improvement, set directions, and provide a basis for developing supporting action plans tied to the strategy.

Making America's Marines

The Marine Corps has always understood that people, not machines, ultimately determine success in peace and war. Accordingly, the cornerstone upon which we will build our future expeditionary force in readiness is the worlds' finest military professional: the United States Marine. The following “end states” have been established to ensure continued development of highly capable, flexible, and adaptive Marines for tomorrow's battlefields.

- Recruit, develop, organize, and sustain a quality total force with the proper mix of educated and trained active and reserve Marines and civilian Marines.
- Create a dynamic training and education system that prepares Marines and Marine forces to succeed in the chaotic environment of the littorals.
- Make every Marine a rifleman.
- Strengthen trust, reward performance, accept mistakes and learn from them, enhance retention, and develop the full potential of our Marines and civilian Marine work force.
- Upgrade the quality of service and life for our Marines, their families, and our civilian Marine employees.
- Cultivate the best possible environment for training and ensure long-term access to U.S. and overseas training areas that provide capability for air, land, and sea maneuver, and seek to influence access to these types of training areas wherever Marine forces are or may be stationed or deployed.

- Strengthen and exercise integrated active and reserve training plans to enhance total force mobilization readiness.
- Create a distributed planning, training, and rehearsal capability for the MAGTF at the tactical and operational levels of war to include an enhanced amphibious capability.
- Expand our participation in science and technology developments to enhance the capabilities of the total force.
- Make America's Marines who remain quality citizens imbued with our core values of honor, courage, and commitment.

Optimizing the Corps' Operating Forces

From the decks of ships, to deep inland objectives, Marines deploy and operate as a combined-arms team — infantry, artillery, armor, combat engineers, logistics, and aviation. These Marine Air-Ground Task Forces (MAGTFs) are self-sustaining, rapidly deployable, and generate maximum combat power with minimum logistic support ashore. They operate effectively alongside other services as well as allied forces and are well prepared to significantly contribute to future Joint and combined operations. Marine Corps success in future combat is critically dependent on those capabilities and the “end states” below are designed to enhance and leverage these operational competencies.

- Provide combatant commanders with scalable, sustainable, interoperable, expeditionary, combined-arms MAGTFs — ready to fight and win America's battles — and shape the international security environment across the complex spectrum of crises and conflict.
- Enhance Marine Corps service component, functional component, and Joint Task Force (JTF) headquarters command and control capabilities to ensure procedural and equipment interoperability with Joint, allied, and coalition forces and interagency organizations.
- Enhance strategic response and operational reach to support and enable Joint, allied, and coalition operations and interagency coordination.
- Increase integration and interoperability with allied and coalition amphibious, land, and air forces.

- Enhance the MAGTF's interoperability with Joint and multinational forces through an efficient command and control system combined with a seamless, organic intelligence, surveillance, and reconnaissance capability linked to national and theater agencies.
- Expand capabilities to observe, visualize, and shape the operational area and to attack enemy critical vulnerabilities leading to the defeat of the enemy's operational and tactical centers of gravity.
- Enhance responsive, integrated, and balanced expeditionary fires leveraging improvements to organic surveillance, target acquisition, aviation, indirect fires, naval fire support, and Joint fires.
- Enhance capabilities to operate in urban and austere environments across the spectrum of conflict while simultaneously further reducing our dependence on existing infrastructure.
- Enhance and expand offensive and defensive information operations capabilities.
- Provide the Department of Defense with a fully integrated and coordinated Non-Lethal Weapons Program based upon flexible and selective engagement capabilities.

Capitalizing on Innovation, Experimentation and Advanced Technology

Throughout its history, the Marine Corps has been at the forefront of military innovation. Driven by the highest institutional standards and demands of the battlefield, Marines were instrumental in developing some of the most significant warfighting operational concepts, weaponry, and equipment of the last century, including maritime prepositioning, amphibious assault doctrine, close air support, non-lethal weapons and unmanned aerial vehicles. The following “end states” ensure that this innovative spirit continues to flourish and remains fundamental to the future health and readiness of the Marine Corps. Appendix B provides a detailed description of this innovative spirit.

- Evolve maneuver warfare tactics, techniques, and procedures to fully exploit the Joint operational concepts articulated in Joint Vision 2020.

- Evolve our warfighting concepts to enhance our ability to participate as partners in Joint and allied concept development and experimentation.
- Incorporate 21st century operational-level amphibious, maritime prepositioning, aviation, land mobility, maneuver, and sustainment capabilities into the operating forces.
- Ensure access to the littorals through evolving expeditionary operations (to include mine and obstacle countermeasures, naval surface fires, etc.), maritime prepositioning, national sealift, high-speed troop lift, and naval aviation capabilities.
- Provide expeditionary-based or -sited assets and forces capable of reinforcing and sustaining naval expeditionary forces in all phases of their operations. Network operational communications, information, and intelligence systems with Joint and allied forces and provide a global access capability to domestic and international information resources.
- Enhance experimentation to include ways to accomplish acquisition, logistic, and support tasks through technological innovations, out-sourcing, and other techniques.
- Provide rapid and precise distribution of tailored expeditionary logistics to the operating forces in any operational environment.
- Tailor our supporting establishment through enhancements to training and education, inventory management, engineering, maintenance, and infrastructure.
- Assess strategy-driven force structure alternatives.

Warfighting Concepts

Warfighting concepts are essential to the Marine Corps' development and are the primary means of creating and maintaining capabilities. They play a critical role in the achievement of future capabilities and the objectives of the Marine Corps' vision. Marine Corps force planning is comprehensive and covers how Marine forces organize, operate, and execute likely missions. These concepts provide an operational context for the evaluation of advanced technology and a basis for identifying required capabilities and the implementation of coordinated programs to develop those capabilities. In sum, Marine Corps warfighting concepts provide a coherent framework for systematically opening "new windows" to future Marine operational capabilities.

Expeditionary Maneuver Warfare

Expeditionary Maneuver Warfare (EMW) is the Marine Corps capstone concept for the early 21st century. Built on the twin pillars of our philosophy of maneuver warfare and our expeditionary culture, EMW prepares the Marine Corps to meet the challenges and opportunities of a rapidly changing world. The concept describes the evolving characteristics and capabilities that the Marine Corps will employ to promote peace and stability and to mitigate or resolve crises. More fundamentally, EMW provides an intellectual foundation that will influence how Marines, both individually and as an institution, analyze, understand, and formulate solutions across the spectrum of military operations. EMW continues the conceptual evolution begun with Operational Maneuver from the Sea (OMFTS) and serves three purposes:

- ‘Operationalizes’ the Corps’ vision of the future contained in ***Marine Corps Strategy 21***;
- Specifies necessary capabilities to organize, deploy, and employ Marine forces more rapidly and effectively than ever before; and,
- Describes the general manner in which the Marine Corps, in partnership with the Navy, provides America with a single integrated force that operates across the spectrum through *presence, engagement and crisis response*.

EMW describes the ‘axis of advance’ for future enhancements. In doing so, the concept focuses on:

- ***Strategic Agility***: to ensure rapid and fluid transition from pre-crisis state to full operational capability in any distant theater. This requires ready forces, sustainable and rapidly ‘tailorable’ for multiple missions or functions. They must be agile, lethal, swift in deployment, and always prepared to reconstitute or move immediately to the scene of an emergency or conflict.
- ***Operational Reach***: to rapidly project, support, and sustain relevant and effective power, in conjunction with other forms of national influence. This can be accomplished independent of host nation support and against distant objectives across the breadth and depth of a theater of operations.
- ***Tactical Flexibility***: to create an overwhelming tempo of action through synchronized application of effects and responsive and adaptive command and coordination. These effects will rapidly erode an enemy’s cohesion.

- **Support and Sustainment:** to enable the enduring expeditionary logistics capabilities of naval forces in order to project influence. This will be accomplished by optimizing our deployment support, force closure, force sustainment, reconstitution, redeployment, and strategic reach back capabilities.
- **Joint/Multinational Enabling:** to enable Joint, allied, and coalition operations (and inter-agency coordination) by blending the unique, combined-effects capabilities of Marine forces with complimentary capabilities of others. The forward presence posture and rapid response time of sustainable Marine forces provides unmatched enabling capabilities for the Joint Force Commander.

These enhancements will bolster our ability to reassure and encourage our friends and allies while we deter, mitigate, or resolve crises through speed, stealth, and precision.

EMW is underwritten by the Corps' philosophy of maneuver warfare and its long established expeditionary culture. As a warfighting philosophy, maneuver warfare emphasizes proactive thought and action, elevating the operational art beyond attrition. It calls for maneuver in time and space, combining speed with a bias for action, and wins by shattering an enemy's cohesion or by rapidly responding to a crisis to mitigate, or resolve its effects. The target is an enemy's center of gravity. Here, the 'enemy' need not always be an opposing force or nation. It can be a natural or man-made phenomenon resulting in humanitarian disaster that demands a response. In this case, the center of gravity may still be viewed as the critical element(s) of the challenge that must be addressed in order to mitigate its effects. This application of the maneuver philosophy allows the Marine Corps to respond with economy of force, yet provide a response that is both effective and appropriate.

Maneuver warfare ideally complements the Marine Corps expeditionary culture. It empowers a force to prevail against superior numbers; it enables expeditionary operations executed far from land-based support; and helps to overcome the constraints of time, distance, and strategic lift. Expeditionary Maneuver Warfare, as an intellectual approach, prepares Marines to out-think, out-maneuver, and out-fight enemies by embracing the chaotic nature of conflict. EMW teaches its practitioners not only to survive in chaos, but also to leverage it, using the uncertainty and friction of conflict as weapons.

Tenets of Expeditionary Maneuver Warfare:

- Focuses decision making and effects on an operational objective.
- Maximizes maneuver battlespace (air, land, and sea) through enhanced mobility.
- Generates overwhelming tempo and momentum through enhanced strategic agility, operational reach, and tactical flexibility.
- Pits strength against enemy weakness.
- Emphasizes intelligence, deception, flexibility, and sustainability.
- Promotes integration of organic, Joint, inter-agency, and combined effects.
- Provides a Joint/coalition enabler and force multiplier.
- Provides capabilities across the entire spectrum of operations.

Expeditionary Maneuver Warfare focuses on the arrangement of air, land, and sea into a seamless battlespace. Unlike traditional operations, EMW focuses on maximizing the effects of operations, rather than the mere destruction of an adversary's military forces or the mitigation of a single aspect of a humanitarian disaster. In doing so EMW builds upon existing concepts of organization, deployment, and employment, adapting them to the future strategic landscape. New organizational concepts will apply time tested methods of task organizing forces while tailoring them to meet the requirements of the mission and commander's intent in increasingly complex operations. Deployment concepts will expand to apply the most appropriate,

Expeditionary Characteristics:

- **Agility:** Worldwide responsiveness, enabling deployment to any environment.
- **Versatility:** Undertake a variety of missions, across the spectrum of operations.
- **Flexibility:** Shift focus rapidly, from one mission to an entirely different one, without the need to return to bases for refitting or retraining.
- **Speed:** Swiftly respond with sustainable power and maintain rapid operational tempo.
- **Forcible entry capabilities:** Identify, overcome, and penetrate an adversary's access denial strategy and systems.
- **Sustainability:** Continue operations indefinitely in an austere environment, devoid of "host nation support," and without reliance upon pre-existing infrastructure.

available means of achieving rapid force closure and sustainment, gaining operational advantage and increased tempo. Finally, expanding employment concepts will help determine the proper application of those forces to the challenge at hand — bringing military power to bear that ensures mission success in presence, engagement, and response. Figure 1–3 graphically shows the relationship of EMW to each of these concepts.

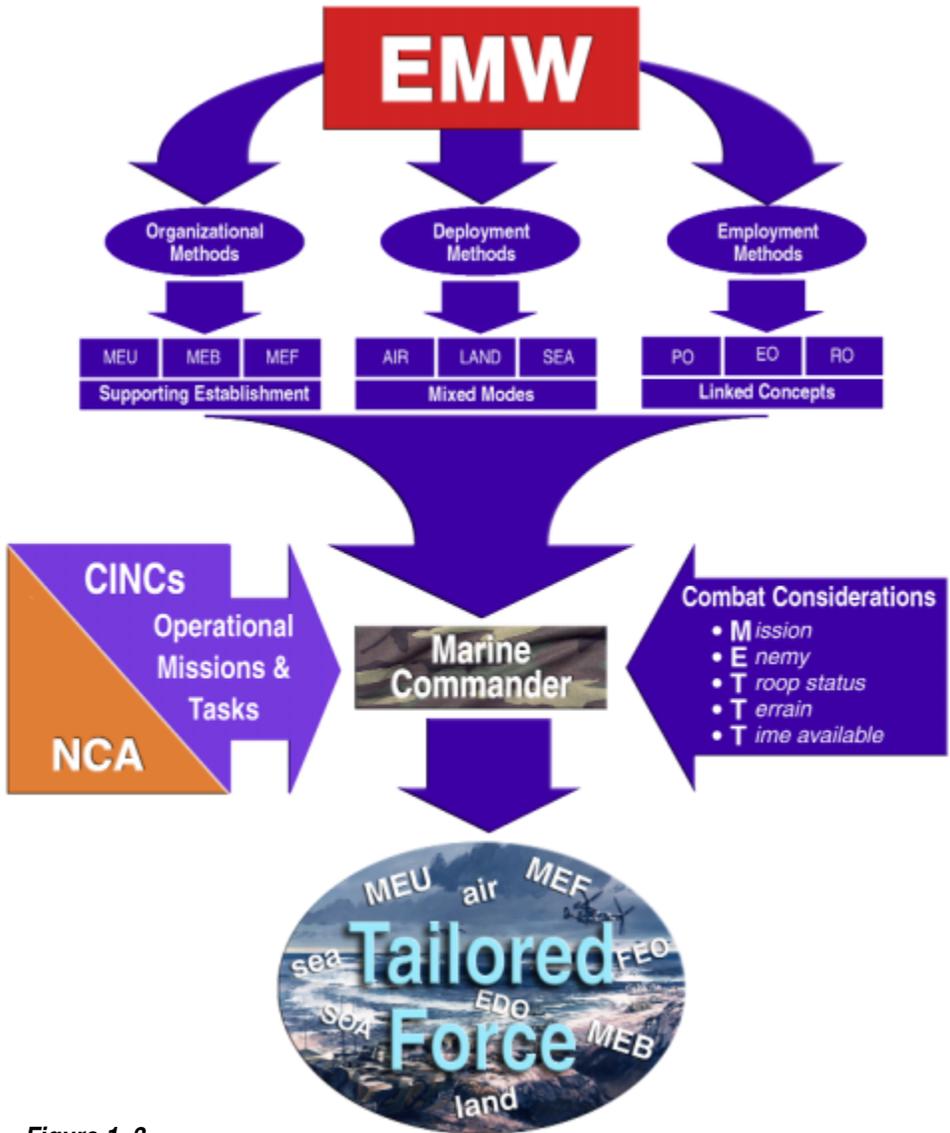


Figure 1–3

Organizational Concepts – Forming Marines for the Fight

The Marine Corps will primarily operate as Marine Air-Ground Task Forces (MAGTFs), integrated forces that include air, ground, and combat service support units under a single commander, delivering fires and achieving desired effects in support of mission objectives. The commanders of Marine Corps components provide unified commanders with scalable MAGTFs to project mobile, reinforceable, sustainable military power across the spectrum of conflict. Marine Corps Forces, Reserve provides ready and responsive Marines and Marine Forces for integration into MAGTFs to achieve mission accomplishment.

Composition. MAGTFs are comprised of elements that vary in size and composition according to the mission. They are specifically tailored for rapid deployment by air, land, or sea.

- **Command Element (CE):** The MAGTF headquarters task organized to provide Joint Force command and control, intelligence fusion, and crisis action planning.
- **Ground Combat Element (GCE):** Formed around ground elements that maneuver from expeditionary bases both afloat and ashore.
- **Aviation Combat Element (ACE):** Formed around aviation maneuver units employed from expeditionary bases both afloat and ashore.
- **Combat Service Support Element (CSSE):** Formed around tailored support units that provide the full range of combat service support functions and capabilities necessary to support the readiness and sustainability of the MAGTF as a whole.
- **Supporting Establishment:** The “fifth” element of the MAGTF. Our bases and stations provide direct and indirect support to the MAGTF as well as the means by which we develop, train and maintain a modern force. They are platforms from which we project expeditionary power and support the quality of life of our Marines and their families back home.

MAGTF Types. Marine Expeditionary Forces (MEFs) are task-organized to fight and win in conflicts including large scale contingency operations or major theater war. Marine Expeditionary Brigades (MEBs) are task-organized to respond to a full range of crises. They are our premier response force for smaller-scale contingencies so prevalent in today's security environment. Marine Expeditionary Units (MEUs) are task-organized to provide a forward deployed presence to promote peace and stability and are designed to be the Marine Corps' first-on-the-scene force. Special Purpose MAGTFs (SPMAGTFs) are task-organized to accomplish specific missions, including humanitarian assistance, disaster relief, peacetime engagement activities, or regionally focused exercises. Figure 1-4 shows how Marine forces can be organized to provide tailored capabilities for specific purposes.

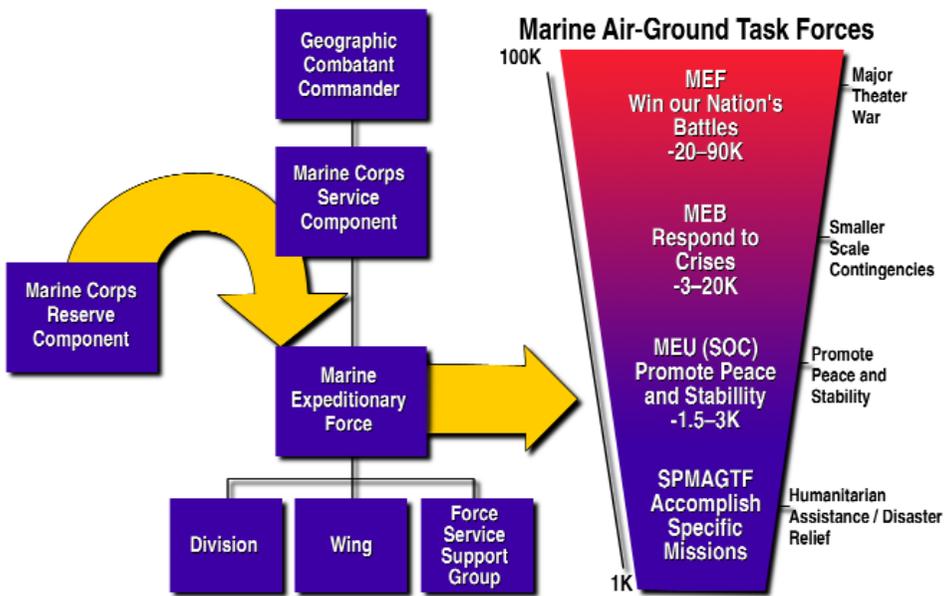


Figure 1-4

In addition to MAGTFs, the Marine Corps provides unique forces, such as Fleet Anti-Terrorism Security Teams (FASTs), Chemical/Biological Incident Response Force (CBIRF), and others to represent a continuum of response capabilities tethered to national requirements. Marine forces provide national decision makers with a variety of tailored presence, engagement, and response options.

Deployment Concepts – Getting to the Fight

Deploying Marine forces rely on our unique ability to use any combination of amphibious platforms, strategic sea and airlift, and prepositioning capabilities to rapidly project forces anywhere in the world. Linking strategic air and sealift with self-deploying aviation units and emerging advanced sealift will expand current capabilities. This will enable rapid force closure through arrival and assembly at expeditionary bases and sites both ashore and afloat. When further linked to an Amphibious Task Force, the interoperability of future amphibious and maritime prepositioning forces will allow for the projection of power and influence ashore to achieve desired effects throughout our entire operational depth.

To support future deployments, bases, seaports, and airfields will be optimized for greater throughput, and the distinction between Operating Forces and the Supporting Establishment will blur as all efforts are focused on one goal — dynamic power projection with greatly enhanced response times. To meet requisite response times, Marines will develop their situational awareness and planning capabilities while still in the deployment phase of operations. Marines will organize ‘on the fly’ — tailoring and refining the mix of capabilities they deploy to theater, even as they converge on the troubled area from other bases potentially far removed. The ability to carry out deliberate and dynamic collaborative planning; conduct virtual rehearsals; and coordinate naval, Joint, and combined battlespace shaping activities enroute to the objective area will enable Marines to move quickly and to operate immediately upon arrival. Eventually, arrival and assembly at forward expeditionary sites, either afloat or ashore, will create unprecedented operational tempo and speed of force closure, thus mitigating an adversary’s anti-access strategy and tactics.



Employment Concepts – Fighting and Winning

Crises are dynamic and chaotic. Lines between “fighting” and “helping,” once clear, are now often blurred. Future Marine forces will be capable of adapting to rapidly changing circumstances and undertaking multiple, simultaneous, or sequential operations without extensive retraining or refitting. Enhanced flexibility and reach allow Marine forces to transition rapidly from one circumstance to another and accomplish missions of like or dissimilar nature. To project power and influence Marine forces employ for presence, engagement, or response. The three are inter-related. Presence provides a mechanism for meaningful engagement and timely response; engagement can reduce the need for constant presence or crisis response; the ability to provide a decisive response gives credibility to both presence and engagement.



Forward Presence. The character of forward presence is evolving with the changing nature of U.S. global interests even in the face of reduced access to overseas bases. Although it is possible to influence world events from the continental United States (CONUS), advanced systems can never replace the person-to-person contacts, the human interaction, or the immediate impact of a visible and credible force *on location*. Forward presence rests upon the capability and willingness to act. Overseas presence extends American influence and supports national interests through promoting peace and stability by encouraging friends and deterring potential enemies. A visible forward presence, combined with other elements of national power, is the best means of influencing events in an area of interest.

Historically the U.S. has relied on forward naval presence to promote overseas interests. Today overseas access and basing rights are diminishing, a trend likely to continue into the future. Naval forces can provide sustained presence without having to occupy another nation's sovereign soil. Sea-based, self-contained, and self-sustaining naval forces are initially unconstrained by regional infrastructure requirements or restrictions by other nations and are always on-station/on-call for our national and theater commanders. Additionally, forward presence enables timely response and reduces the "tyranny of time and distance."

Whether serving in deployed units or U.S. embassies, Marines gain operational experience, regional familiarity, and cultural awareness. Through continued forward presence Marines build relationships and develop a shared understanding that facilitates close coordination with host nation, inter-agency, non-governmental organizations, and other entities. The location of a force influences its availability, sustainability, and suitability for a given mission. Marines serve as an on-scene deterrent and a tangible representation of America's commitment to regional peace and stability.

Engagement. In peace as in war, forward deployed Navy and Marine Corps forces are an important and visible part of the nation's engagement strategy. The future mandates forces that are able to thrive in the complex cultural, political, and economic crosscurrents that will determine the nature of future conflicts and crises. In this complex environment, advanced planning will increasingly require an in-depth understanding of an enemy's capabilities, intentions, and vulnerabilities. This understanding will expand our ability to define a wider set of effects that will influence the enemy's will and capabilities.

These unique capabilities make the Marine Corps ideally suited to support the individual theater commanders' engagement planning. For example, interaction with overseas counterparts through multinational training exercises, mobile training teams, and military-to-military exchanges provide a critical component of Commander in Chief (CINC) Theater Engagement Plans (TEPs). Theater CINCs must, in effect, accomplish their missions by overcoming time and space to bring together forces with requisite capabilities. Marines provide the capabilities from a posture of familiarity—either because they are on the scene, or have operated there before, alongside allies and coalition partners within the region.

Response. Naval forward presence and engagement operations are integral to effective crisis response. The lines between presence, engagement, and response are often ill defined. *Presence* and *engagement*

reflect proactive activities aimed at encouraging positive cooperation and deterring destabilizing behavior, while response is a reactive operation that mitigates or resolves crises. The Navy-Marine Corps Team must continue to be ready to respond rapidly to crises with little or no warning.

The Marine response will focus on timeliness, 'tailorable' and scalable force packages, projection of relevant power, and the ability to conduct simultaneous and sequential operations to achieve desired effects. Inherent will be the ability to support and sustain any sized Marine force over unprecedented distances using a combination of speed, stealth, and precision from land or sea expeditionary bases and sites.

Navy and Marine forces are uniquely suited to provide the initial capability to enable a wide range of Joint and combined operations and to support interagency activities. Marines can either lead the JTF or provide integrated forces. Once employed these same forces can be quickly augmented to engage in extended operations.



The MAGTF, as part of a larger Naval force, is the Joint Force Commander's primary response option to resolve the littoral access denial challenge. One of the most valuable features of MAGTFs is their capability to conduct forcible, early-entry operations, even against adversaries determined to deny entry to our forces. Using organic combined arms and leveraging complementary capabilities from other air, land, and space forces, naval forces will locate and penetrate vulnerable seams in enemy access denial systems, then close rapidly on critical objectives to achieve decisive results or enable the introduction of follow-on Joint, allied, or coalition forces. Naval

forces can also react to natural or man-made disasters, containing the initial effects, and if necessary, enabling larger scale forces task-organized to the specific requirements of resolving the situation. Naval forces also enable coalition forces by providing intelligence, logistics, and communications support that enhance success of coalition-led operations around the world.

Beyond presence, engagement, and enabling roles, naval forces provide a potent warfighting force to the theater CINC. Marines can seize and defend air and seaports of debarkation, intermediate staging bases, strategic "hub" ports, enabling airfield operations, and other key nodes. Once the requisite Joint forces and/or multinational forces are employed, Marines can re-deploy and re-engage in another time and place at the Joint force commander's choosing. The MAGTF can also serve as an integrated operational maneuver element combining rapid action with precisely delivered effects to disrupt the enemy's tempo and cohesion.

Expeditionary Maneuver Warfare establishes a design for the Marine Corps to meet the challenges of the 21st century. Achieving the full promise of this concept will require the continued development of speed, stealth, and precision. Developmental efforts for EMW must focus on enhancing key fundamental capabilities across a broad range of military operations from major theater war to humanitarian assistance. These improved operational methods together with emerging technology will enhance the inherent responsiveness and flexibility of the MAGTF, and enable an expanded role for the Marine Corps in future stability and power projections operations.

Marine Corps Experimentation

Making the Marine Corps vision a reality requires effective exploitation of innovative concepts and technologies which will enable Marine forces to be more responsive, more precise, better protected, and more easily sustained. To achieve these objectives, integration of concept development with experimentation efforts is necessary to explore new concepts, promising technologies, and the synchronization of Joint solutions. The Marine Corps Warfighting Laboratory (MCWL), established in 1995, plays an important role in these activities. Through concept-based experimentation, it systematically learns not only from real world operations, but also from experiments using wargames,



computer-assisted simulations and field trials that replicate future operational capabilities and conditions. The Lab is aggressively pursuing new concepts in five areas: Asymmetric Warfare; Reconnaissance, Surveillance, and Target Acquisition; Military Operations in Urban Terrain; Command and Control/Information Technology; and Prototype Transition to Acquisition. The more promising initiatives that emerge from these efforts will be passed on to the Marine Corps requirements and acquisition communities for further refinement or fast-track implementation into the force.

In anticipation of the many challenges facing the Marine Corps in the century ahead, the Lab formulated an initial Five Year Experimentation Plan (FYEP). To date, two of the three FYEP phases have been completed. The first, Hunter Warrior, examined small unit enhancement for the dispersed, extended battlespace. Urban Warrior, the second phase, examined operations in cities and urban environments, and was completed in March 1999. Capable Warrior, the last phase, builds on the lessons learned from the previous projects. Its purpose is to develop or find technologies, tactics, techniques and procedures that can enable sea-based expeditionary maneuver warfare in the future.

Another aspect of the FYEP is the effort to harmonize Marine Corps initiatives with the other service capabilities, where possible, and develop Joint solutions, where necessary, to assure future Joint Force commanders have the tools needed to meet operational challenges. Specifically, Capable Warrior will involve extensive Joint experiments with the Army, addressing military operations in urban terrain; and the Navy, concerning communications connectivity. Furthermore, a comprehensive program of four experiments has been structured to ensure Marine Corps connectivity



and interoperability with our sister services and coalition partners. In sum, the lessons learned from these experiments will permit the Marine Corps to take major steps toward achievement of the Marine Corps vision.

Realizing the Vision

Today, the Marine Corps is healthy and capable of executing its mission. As the nation's force in readiness, near term readiness is by necessity a first priority. For almost a decade, however, declining defense resources have prohibited us from adequately preparing for the future by forcing us to fund near term readiness at the expense of essential procurements and supporting establishment programs. Realization of the Marine Corps vision and the achievement of tomorrow's capabilities will require an appropriate level of investment and a modest increase in the Department of the Navy top line.

Despite many challenges, the Marine Corps is primed for the future and is on a modernization track that, if realized, will achieve its vision and dramatically enhance its strategic agility, operational reach, and tactical flexibility. In the 2008 timeframe, Marines will benefit from the revolutionary MV-22 Osprey tilt-rotor aircraft and the high-speed Advanced Amphibious Assault Vehicle (AAAV). Along with the Landing Craft, Air Cushion, the MV-22 and AAAV will significantly enhance MAGTF capabilities. We are also prepared to field a new generation of modern ground equipment to include the High Mobility Artillery Rocket System and the lightweight 155 mm Howitzer. Further, our Aviation Combat Element will receive the Joint Strike Fighter, a truly Joint weapon system that can be operated from expeditionary airfields, amphibious ships and aircraft carriers. Finally, we are ready to improve our Combat Service Support Element with systems like the Medium Tactical Vehicle Replacement and the HERCULES recovery vehicle. Capitalizing on these opportunities and achieving the promise of tomorrow will require adequate resources. At the request of the Congress, the Marine Corps has identified approximately a \$1.8 to \$2.0 billion per year requirement for critical unfunded priorities. Such an investment would enable realization of the objectives of the Marine Corps vision and provide a profoundly modernized Corps with an enhanced level of readiness.

As the world's wealthiest nation, in the midst of unprecedented economic growth, we have the means to ensure the security and prosperity of future generations of Americans. Additionally, we have a commitment to global leadership that we must not shirk. Therefore we must seize this opportunity and prudently increase defense resources to ensure the vitality and modernization of our forces.



Chapter 2

Concepts and Issues

This year, the U.S. begins another Quadrennial Defense Review (QDR), which will comprehensively assess defense needs including: strategy, force structure, and modernization. In the process, defense analysts will focus on right sizing the defense establishment to match the resources available. As part of the QDR, the Military Services will articulate their visions and develop the necessary programmatic and budgetary blueprints to meet anticipated future national security challenges. As America's premier force in readiness, the Marine Corps is well positioned for the challenges of the 21st century. ***The Marine Corps Vision*** and ***Marine Corps Strategy 21*** will ensure that its well established "911" role will remain relevant in the execution of the National Military Strategy.

Public debate on policy and resource issues raised by the QDR is integral to consensus building and the defense decision process. It is an important means of ensuring an acceptable, economical, and capable defense posture. To this end, this chapter presents those key Marine Corps concepts, issues, and positions that will be important to the debate.

The 2001 Quadrennial Defense Review

Discussion

This year marks the sixth time in the past decade that the U.S. will comprehensively reassess its national security strategy, military forces, modernization plans, and resource adequacy. As we pursue these efforts to streamline and update our defense establishment to meet emerging challenges and incorporate the promises of new technology, it is essential that a focus be maintained on three core questions: What capabilities should our forces possess? What are the strategic and operational settings in which they will be employed? And what are the political purposes they serve?

Despite significant changes and emerging trends in the post-Cold War environment, the fact remains that America is a maritime nation relying on the guaranteed use of the seas for both our economic well-being and the ability to project military power in support of our global interests. To promote and protect these interests, and maintain its position of global leadership, a U.S. military strategy based on the sea power concepts of forward presence and maritime power projection is essential.

These facts mean that naval-Navy and Marine Corps — forces will play an important future role in support of America’s foreign policy objectives. Naval expeditionary forces not only provide the nation with highly effective military forces suitable for a wide variety of scenarios, but that are also politically useful across the widest possible range of diplomatic situations. They are powerful instruments of national policy with special strengths stemming from the complementary but distinct capabilities of the Navy and Marine Corps to command the seas and conduct operations ashore. Naval forces enjoy great freedom of movement on the open sea. They can reach a crisis spot without crossing national boundaries, remain unobserved over-the-horizon until needed, and then depart an area as swiftly as they arrived once a solution is reached.



When land-based facilities are unavailable, naval forces can be tailored for specific situations, providing carrier based air power, Marine Air-Ground Task Forces, sea-launched cruise missiles, or special warfare forces as needed. Naval expeditionary forces can conduct and sustain operations from sea bases. These forces also can project power inland further than ever before, which means that an increasingly larger portion of the globe now falls under the potential influence of U.S. naval power. Today, and for the foreseeable future, naval power is essential if the U.S. is to project global military and political influence.

Naval expeditionary forces can dominate a foe in the littoral battlespace and the adjoining airspace thus reducing risks to follow-on forces. Naval expeditionary forces can also establish control of ports and airfields and inland areas to enable the majority of troops, equipment, and supplies to flow ashore. Significantly, naval expeditionary forces can easily reinforce and complement other American and allied forces, providing great unity of effort for land, sea, and air forces. The result is tremendous lethal striking power and an unmatched means to leverage Joint warfare.

Besides serving operational needs, forward deployed naval expeditionary forces also fulfill important diplomatic roles. They are a tangible expression of U.S. political commitment and military strength. The military capabilities of these forces serve to dissuade regional aggressors and maintain regional stability. Friendly powers typically welcome the presence of American naval forces, seeing them as contributing to regional stability. They also remind potential belligerents that the entire military force of the United States can be deployed. By promoting peace through overseas presence and partnership with our friends and our allies, Navy and Marine forces deter threats to stability to preserve the nation's interests.

Marine Corps Position

The Marines Corps believes the QDR will revalidate the unique contributions made by Navy and Marine Corps expeditionary forces to National Defense. Naval expeditionary forces are powerful national security assets that no other nation can match. They will ensure regional stability by promoting peace, protecting vital interests and when necessary project decisive combat power. Within the current and foreseeable international security environment the increasing value of naval expeditionary forces make them the sine qua non of America's engagement capability in the 21st century. To ensure that these forces remain highly ready and modernized for future contingencies the gap between requirements and resources must be closed.

Expeditionary Maneuver Warfare

Discussion

Expeditionary Maneuver Warfare (EMW) is the over-arching concept that describes how the Marine Corps fulfills its national security role now and in the future. It provides a capstone statement of Marine Corps methods of organization, deployment, and employment. The concept is a larger set that includes **Operational Maneuver From the Sea (OMFTS)** and serves three purposes: operationalize the Corps' vision of the future contained in **Marine Corps Strategy 21**; expand the Corps' family of warfighting concepts to address the full spectrum of engagement; and, most importantly, describe the general manner in which the Marine Corps, in partnership with the Navy, conducts operations today and will conduct operations tomorrow, across the full operational continuum. EMW is underwritten by the Corps' philosophy of maneuver warfare and expeditionary culture, and it has four distinguishing characteristics; operations other than war; expeditionary operations from a sea-base; ship-to-objective maneuver operations; and sustained operations ashore.

Organization

Marines organize using building blocks of capabilities that are scalable to any required level. From their first day in the Corps, all Marines are taught to think innovatively as individuals, while acting cohesively as members of the integrated combined arms team — the Marine Air Ground Task Force (MAGTF). Marines from Private to General have a common yet highly creative way of looking at operational problems that facilitates rapid, parallel planning, and swift decisive execution — reaching from home station to forward deployed locations. The result is an organization that can think “on the run,” deciding among alternative organizational, deployment, and employment options, and, once deployed, able to meet new and unexpected challenges without reorganization. The flexible and adaptable Marine Expeditionary Unit (MEU) is the leading edge of the more robust crisis capabilities of the Marine Expeditionary Brigade (MEB), both of which are contained within the major warfighting power of the Marine Expeditionary Force (MEF).

Deployment

Marines deploy either upon Navy amphibious assault shipping, or by the use of the Corps' own Maritime Prepositioning Force (MPF) ships, or strategic air or sealift. This strategic agility preserves options and enables the

Joint force commander to use Marines to exploit adversary vulnerabilities. With our Navy shipmates to help assure access, we can use the international commons of the sea as a maneuver space, seabase, and sanctuary for command and control, logistics, and fires support, providing a fundamental and powerful asymmetric advantage.

Employment

Marines are employed across the spectrum of conflict, including peacetime training and engagement, humanitarian assistance and disaster relief, peacekeeping, and the full range of warfighting. Once clear lines between “fighting” and “helping” now often appear blurred. Marines, however, have a history of operations that have made us very aware of regional and cultural differences. The standard training, equipping, and expeditionary outlook of individual Marines in these forces enables them to operate at any level of the spectrum immediately, with organic sustainment, in a Joint or combined force environment.

Four interrelated supporting operational concepts characterize our approach to projecting power and influence ashore:

Operations Other Than War: This operation is in many ways the historic, primary role of expeditionary naval forces. This is the day-to-day peacetime forward presence that is fundamental to crisis prevention, dissuasion, and engagement. It includes the myriad activities that forward-deployed naval forces can execute: humanitarian assistance, disaster relief, military training, noncombatant evacuations, and a host of supporting functions.

Operations from a Seabase: recognizes that force protection issues, limitations on forward basing and host nation support potential anti-access strategies, and other compelling factors, reinforce the importance of the sea as both a maneuver space and haven. The Marine Corps has long exploited both the advantages of that domain and the Navy’s mastery of it, so that together we can assure access for Joint force commanders.

Ship to Objective Maneuver is the rapid employment of the MAGTF by air and surface means from amphibious shipping or a sea-base to objectives in the littorals and beyond. This affords vastly increased force protection, tremendous operational mobility and tactical flexibility, and the opportunity to achieve degrees of speed and surprise impossible in past expeditionary operations.

Sustained Operations Ashore recognizes that Marines must be prepared to conduct extended, sustained operations ashore either independently or in a Joint or combined environment.

Marine Corps Position

Expeditionary Maneuver Warfare establishes a comprehensive framework for the Marine Corps to build upon to transform current capabilities to meet the challenges of the 21st century. Achieving the full promise of this concept will require the continued development of improved capabilities in speed, stealth, and precision — which the Marine Corps has always valued, but now underlie our path to the future.



Other Enabling and Supporting Concepts

Discussion

Expeditionary Maneuver Warfare (EMW) broadens the Corps' way of thinking about its primary missions of forward presence and littoral power projection. (See pages 15–25) Other supporting concepts build upon its expeditionary and maneuver warfare themes to enhance different aspects of future operations. Through wargaming and experimentation we identify and exploit the more promising concepts and supporting technologies for subsequent assessment. The Marine Corps' Warfighting Laboratory serves as the focal point for operational evaluation reform, and is charged with testing new and promising concepts and technologies and assessing their total impact on the Corps' warfighting capability. The Marine Corps is actively evaluating the following concepts intended to transform the Corps' operational capabilities:

Military Operations on Urbanized Terrain (MOUT): Given current projections of dramatic increases in urbanization, especially in the volatile developing world, Marines are preparing for operations in cities. Historically, MOUT have been attrition style operations, relying upon overwhelming firepower to achieve the destruction of the enemy's materiel assets. Such an approach exacts a heavy toll in casualties and infrastructure destruction. In the future, the Marine Corps will adapt maneuver warfare to the urban environment to accomplish its mission at significantly lower human and materiel costs. Marines will achieve the transformation to urban maneuver warfare through enhancements in the following seven areas: command and control, measured firepower, mobility, awareness, adaptability, force protection, and sustainability.

MOUT Advanced Concept Technology Demonstrations, co-sponsored by the Marine Corps Warfighting Laboratory (MCWL) and the U.S. Army's Dismounted Battlespace Battle Lab (DBBL), include numerous separate service and Joint experiments to explore technological and tactical solutions for 32 identified urban warfighting requirements. Additionally, Project Metropolis, an initiative that evolved from the urban combat experiment in Urban Warrior, will focus on refinements and improvements at the tactical level.

Information Operations (IO): IO is an integrating concept that facilitates the warfighting functions of command and control, fires, maneuver, logistics, intelligence, and force protection. Not simply another “arrow” in the MAGTF commander’s quiver, IO is a broad-based capability that “makes the bow stronger.” Information operations involve actions taken to affect adversary information and information systems while defending our own. They consist of Offensive IO (PSYOPS, Physical Destruction, Deception, Electronic Warfare, Computer Network Attack [CNA]), OPSEC, Computer Network Defense (CND), Defensive IO (physical security, Information Assurance, Electronic Protection, Counter PSYOPS/Intel, etc.), Public Affairs, and Civil Affairs. In the future, IO conducted by MAGTFs will be focused upon the information-oriented activities that will best support the traditional application of combat power. Specifically, in addition to providing a means of protection to Marine assets, Marine Corps IO will support maneuver warfare through actions to deny, degrade, disrupt, or destroy an enemy commander’s ability to command and control his forces.

Information operations will not be conducted in a vacuum; rather, they will complement the traditional uses of military force and be carefully planned and fully integrated at all levels, tactical through strategic.

Future Maritime Prepositioning Forces (MPF(F)): This is the concept by which next-generation MPFs will contribute to forward presence and power projection capabilities, which will remain central to U.S. dissuasion and conflict resolution strategies well into the future. The envisioned enhancements will expand the functionality of MPF across the full range of contingencies. The concept is described through five key “pillars” of future MPF operations: force closure, amphibious task force integration, indefinite sustainment, reconstitution and redeployment, and force protection.

MPF(F) fully supports the conduct of operations from over-the-horizon. Exploiting the sea as maneuver space, the dispersed, mobile MPF will complicate the enemy’s targeting process and take advantage of extended standoff ranges, which will enable our combatants to more effectively acquire and defeat incoming threats. The medium for movement for the MPF, the sea, also serves as a barrier to terrorists or special operations forces whose mission would be to strike at facilities established in the landing force rear. Whether major theater war or operations in support of smaller scale contingencies, the ability to reduce the landing force’s footprint ashore by basing it at sea will reduce exposure to threats from hostile forces, individuals, and the physical environment itself.

Beyond C2 comprehensive command and coordination of the MAGTF: As this century unfolds, we are likely to see Marines conducting humanitarian operations, peacekeeping, and high intensity combat — all on the same day and in the same operating area. Execution of these diverse missions will require Marines to routinely work side by side with government, non-government, and international agencies. Beyond C2 outlines a transition from a traditional notion of command and control to the concept of command and coordination, wherein “control” is a part of effective command, and not resident in the technologies used. The aim of Beyond C2 is to empower commanders at every level to focus resources on a mission, while enabling the inventiveness and initiative of subordinates. Ultimately, future comprehensive command and coordination seeks to provide increased freedom of action to the operational forces. The capability to provide superior command will further the Marine Corps’ ability to apply the tenets of EMW across the full spectrum of operations.

Beyond C2 suggests going beyond conventional forms of military power and incorporating all elements of national power in support of national objectives through a seamless command information architecture. Through “reachback” access to non-traditional elements of power, MAGTF commanders will enjoy an improved ability to detect emerging crises, effect dissuasive action, respond where necessary, and resolve threats to national interests. Specifically, the concept envisions a capability to coordinate, collaborate, and ultimately integrate the intellectual, diplomatic, experimental, and material power of military, academia, industry, government, and non-government organizations to address the challenges of the 21st century. The Marine Corps has already taken the first steps toward this capability through its efforts with the Chemical/Biological Incident Response Force (CBIRF). The Marine Corps has tapped into the expertise of Nobel Laureate, Dr. Josh Lederberg, and others, to assist in the event of a chemical/biological attack. As the head of the reachback staff, Dr. Lederberg and his team join CBIRF virtually at the scene of response via telecommunications and provide valuable diagnostic and treatment information. It is not difficult to visualize the expansion of the concept to a point where the expertise of chemical companies, computer and software firms, banks, and environmental groups can be made available to commanders operating on the battlefields of the 21st century.

Advanced Expeditionary Fire Support: This concept proposes a system capable of providing fire support across the range of expeditionary operations. This system must be flexible, robust and responsive, providing all categories of fire support, from devastating lethal fires to tailored non-lethal fires. It must offer an optimal mix of engagement options, including both precision-guided munitions and precisely delivered general-purpose ordnance. EMW emphasizes sea-basing, to include sea-based naval and aviation fire support. Advanced Expeditionary Fire Support recognizes and embraces this principle, but identifies a continuing requirement for shore-based systems, as well.

Sea-based Logistics: Proposes methods to support a full spectrum of littoral operations, and outlines implementing capabilities for Expeditionary Maneuver Warfare, while retaining Joint interoperability. The key tenets considered in this concept are sea-based primacy, demand reduction, in-stride sustainment, adaptive response/Joint operations capability, and the ability to close and reconstitute forces at sea. Overall, the concept seeks to employ improved logistics tactics, techniques, and procedures to deliver flexible, highly responsive support for future naval and Joint operations. Seabased Logistics embraces existing and emerging commercial processes to expand the range, speed, and magnitude of tactical and operational sustainment. A primary enabler will be the coupling of ship to objective distribution with network based, automated logistics information to provide sustainment for naval expeditionary forces as they maneuver ashore and fight inland to their objectives. To ensure relevance, sea-based logistics capabilities must be sufficiently flexible and suitably robust to overcome the challenges of future asymmetric operational environments.

Future MAGTF Aviation: Embraces a future environment characterized by increased chaos and instability. It describes the inherent capabilities unique to Marine Aviation, which make it an essential combined-arms element of the MAGTF, and seeks to apply anticipated future aviation capabilities within the context of EMW requirements. Future MAGTF Aviation examines Aviation Combat Element (ACE) contributions to the MAGTF's overall capability through three primary activities: coordination, power projection, and sustainment. The concept postulates that future operations will require even greater interdependence and reliance between the elements of the MAGTF.

As ACE functional areas evolve, they will need to bridge legacy systems with future capabilities. Although the activities embedded in ACE functional areas will remain valid for the foreseeable future, MAGTF Aviation acknowledges the requirement for closer correlation of ACE functions with those of the MAGTF. Therefore, this concept describes the ACE and its capabilities as an integral, indispensable element of the MAGTF's combat power, while calling for vastly increased synergy between the elements that will enable the MAGTF to successfully conduct future operations in the littorals.

Future Anti-Armor Operations: Marines will likely face hostile armored fighting vehicles in most future conflicts, to include small-scale contingencies. Further, Marines will frequently conduct expeditionary operations in the complex terrain which characterizes the urban littoral. This environment will present unique challenges in locating, identifying, and engaging armored vehicles. New, sophisticated anti-armor systems are under development, as are active protection systems, advanced armor, and other countermeasures that will likely serve to maintain the status of armored vehicles as formidable combat platforms. Anti-Armor Operations provides a future vision for addressing enemy armor. The concept outlines a fully integrated approach that links information operations with lethal and non-lethal fires. It starts with the MAGTF commander, who will use enhanced situational awareness and information operations to deceive, confuse, and immobilize enemy defenders. He will exploit a command and coordination system that will provide an accurate and current tactical picture which, when integrated with the full range of sea-based fires, will render enemy armored forces unable to move, sustain themselves, or effectively threaten friendly maneuver.

Marine Corps Position

Creating new operational concepts to conduct future battlefield operations and developing innovative equipment and force designs that provide versatile organizational, deployment and employment capabilities are essential to Marine Corps success in the 21st century. In order to realize these objectives, we must leverage new advanced technologies via emerging operational concepts to redefine how Marine forces will conduct successful operations across the conflict spectrum in the complex and uncertain environment of the next century.

Marine Corps Readiness

Discussion

Today's Marine Corps is healthy and vital to the nation's national security strategy. There are 172,600 Marines on active duty with over 114,000 of them in the operating forces. On a daily basis, nearly 30,500 Marines are forward deployed, forward based, forward stationed, or deployed for training around the world. The 39,600 men and women of the Marine Corps Reserve are key to the success of our total force. They play an important role in augmenting and reinforcing our active forces, and an increasingly more active role in conducting operations usually assigned to active duty forces.

Recent budget increases to improve health care and pay have significantly helped recruiting and retention efforts and stabilized potential degradations to personnel readiness. Over 2,100 Marines will return to the operating forces from "housekeeping" billets beginning this fiscal year to increase readiness. The middle tier of our expeditionary warfighting capability, the Marine Expeditionary Brigades, were reestablished within the past year and they have clearly demonstrated their operational value to the warfighting CINCs.

The Marine Corps' focus is on its operating forces, where our first priority is readiness. The readiness of the Marine Corps rests on four pillars: Marines and their families, legacy systems, modernization, and infrastructure. Balancing limited resources across these four pillars over the past decade of constrained budgets and increased operational requirements has been very difficult. We have had to defer investment in modernization and infrastructure to fund current readiness.

We assess our current and future health in terms of the five elements of the MAGTF: CE, GCE, ACE, CSSE, and bases and stations. Across the MAGTF, the pace of modernization and the reduced amount of infrastructure investment are concerns. We have reached the point of block obsolescence for much of our ground and aviation legacy equipment. Many of our key pieces of equipment have far exceeded their programmed service lives, and some have reached the end of their useful lives. The CE's command and control systems must be modernized to meet necessary Joint and combined warfighting capabilities. The GCE's five-ton trucks and M198 howitzers are one year from the end of their programmed lives. We are doing what we can to extend the lives of our equipment, such as our 28 year old AAVs, until their replacements are fielded. In the ACE, the situation is the same for our aircraft, the majority of which (CH-46E, CH-53D, KC-130F and UH-1N) have exceeded their service lives. Where applicable, we are extending their

service lives through upgrades and remanufacturing designed to reduce life-cycle costs, improve operational capabilities, and resolve safety deficiencies until their replacements are procured. Our CSSE's equipment is aging similar to the other elements of the MAGTF. Despite the importance of combat service support to our forces, we must rely on aged vehicles, trucks, and materiel handling equipment that should be replaced.

The challenges to improving our infrastructure, while maintaining current readiness, are equally significant. Recent budget increases have arrested the growth of the backlog of maintenance and repair at our bases and stations, but reducing the backlog remains deferred well into the future. Additionally, military construction is funded well below the industry standard. Underfinanced infrastructure accounts result in increased maintenance costs and less support for our Marines and their families.

Our Marines are the greatest asset of our Corps and their effectiveness is dependent, in large measure, on the support provided by their families. Consequently, support for our families is vital to any discussion concerning readiness. We must also be vigilant to protect our bases and stations against the many forms of encroachment that threaten to curtail our training and operations. We will remain good neighbors with the surrounding civilian communities and stewards of our environment, without degrading training and the mission effectiveness of our bases and stations.

Safety, both operational and personal, is another readiness concern of the Marine Corps. Accidents resulted in the deaths of 112 of our Marines and Sailors, and injuries to 775 others from July 1999 to July 2000. These alarming statistics include both training and off-duty accidents. Sadly, many of these deaths and injuries could easily have been prevented. Safety must be afforded the attention it warrants, with the goal of eliminating preventable mishaps.

Marine Corps Position

Acceleration of the pace of modernization and support for our infrastructure are essential to maintaining readiness and to the timely improvement of our capabilities. Despite the challenges that confront us, the Marine Corps, drawing upon our 225 years of expeditionary tradition, is primed for the future. Thanks to a Corps-wide commitment to warfighting, innovation, and experimentation, the Marine Corps is able to execute its mission. It will take the continued support of Congress and the American people, however, to ensure that we continue to remain ready and modernized for the future.

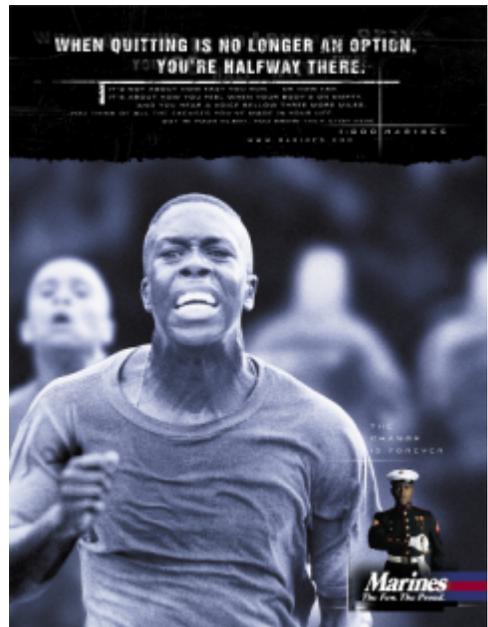
Recruiting

Discussion

With global political, economic, religious, territorial, and ethnic insecurity looming over the 21st century, it is imperative that our Corps be comprised of the best and brightest of America's youth. In order to operate and succeed in these potentially volatile times, Marines must be physically and morally fit, intelligent, and comfortable with high technology. Quality recruits ultimately translate into high performance, stabilized attrition, increased retention, and improved readiness in Marine operating forces.

The Marine Corps Recruiting Command (MCRC) serves as the vital conduit that provides the total force with a steady flow of quality enlisted and officer accessions. During FY00, the Marine Corps exceeded all of its assigned accession goals, continuing a string of success that has endured for more than half a decade.

Recruiting provides the lifeblood of our Corps and it is the foundation for all the Marine Corps does to "Make Marines, Win Battles, and Create Quality Citizens." As such, the Corps recognizes the importance of assigning our best Marines to fulfill this vital role in maintaining the quality and health of its operating forces. It is important that we train, resource, and equip these recruiters with the tools necessary to excel in today's highly competitive recruiting environment. Furthermore, our recently implemented recruiter Quality of Life initiatives, market research efforts, and new technological and advertising programs give our recruiters added support. In concert with these projects, MCRC has completed the first year of its national restructuring effort, a fact-based, data-driven recruiter location assignment process that gives every recruiter an equal opportunity to succeed.



The future environment promises to be as challenging as ever for the Marine recruiting force. The market of qualified young men and women (age 17 to 21 years) has increased only slightly while their propensity to enlist

remains constant, but low. A burgeoning economy, increasing college enrollment, and generational differences have also impacted recruiting. Accession missions, however, will continue to remain relatively constant.

In order to meet the challenges of the 21st century and maintain our competitive edge, the Marine Corps has set strategic recruiting goals. These include maintaining our high quality accession standards, assessing and modernizing training programs, and aggressively pursuing process and policy innovations that increase recruiter effectiveness. We will also continue communicating our brand image, “Elite Warrior” to the new generation of prospects, develop broad quality of life guidance and initiatives, explore and develop technology innovations, and build and foster external relationships across a broad spectrum of American society. These goals act as a guidepost for every element of the Marine Corps Recruiting Command, giving definable objectives that lead us to achieving the desired result of accessing young men and women of character into the Corps.



Marine Corps Position

In FY00, 95.8 percent of our recruits were high school graduates, and 66.1 percent scored in the upper half of the Armed Services Vocational Aptitude Battery, well above both DoD and USMC standards. These results indicate that, in spite of the challenges MCRC faces in future months, we are poised and prepared to overcome those obstacles with measured and proven recruiting methods. Likewise, recruiting America’s quality youth for service in our Corps provides our operating forces with individuals capable of overcoming future challenges. The Marine Corps remains committed to a strong and adequately resourced recruiting program smart, efficient recruiting for warriors of the 21st century.

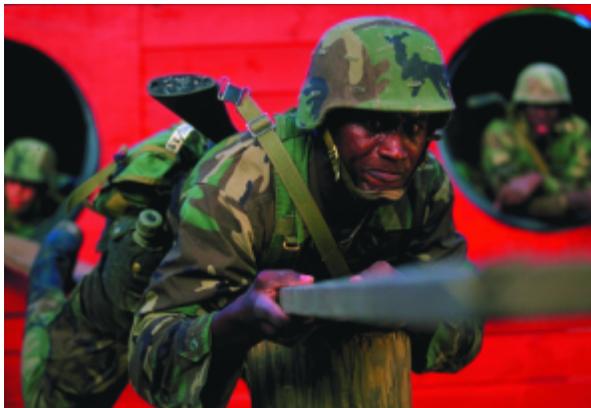
Making Marines – Transformation

Discussion

The Corps has strengthened the way it makes Marines, builds self-confidence and strength of character, and instills a common set of values. The Corps' goal is not only to produce high quality Marines, capable of winning the nation's future battles, but also to make better Americans. The transformation of young men and women into Marines challenges them mentally, morally, and physically and occurs in four phases: recruiting; recruit training; cohesion; and sustainment.

Recruiters begin the transformation process by recruiting the highest quality men and women. The Delayed Entry Program allows recruiters to prepare recruits for the rigors of recruit training and to expose them to Marine core values: honor; courage; and commitment.

Recruit training has been modified to expand the influence of drill instructors, as well as the amount and quality of time they spend mentoring and setting the example for their recruits. Recruit training is a twelve-week program for both males and females. The Corps has retained its proven, tough, demanding recruit training program, but has enhanced it to ensure the Marines it makes are capable of prevailing in the future.



The culmination of recruit training is the “Crucible,” an intense field training exercise designed to build unit cohesion, reinforce core values, and complete the transformation from recruit to Marine. The “Crucible” is the defining moment of the recruit training experience. As a rite of passage, the

“Crucible” is a 54-hour ordeal that tests the mettle of every recruit. The physical and mental challenges are intensified by sleep and food deprivation. The “Crucible” focuses on six major field events and is augmented by eleven challenging “Warrior Stations.” Throughout this rapid paced exercise, emphasis is placed on the importance of teamwork in overcoming adversity and adaptive problem solving. The teams of recruits, under the leadership of their drill instructor, succeed as a team. The experience pushes recruits to their limits and is a poignant culmination to the transformation process.

Following recruit training, newly forged Marines are assigned into teams under a new program called “Cohesion.” This program builds and assigns the recruits into teams from the “Crucible” through initial military occupational specialty training and then into the Fleet Marine Force (FMF). Unit Cohesion is designed to develop team integrity through the assignment of Marines who will remain together throughout their first term of enlistment, building bonds and developing confidence in one another. Achieving this objective requires synchronization of team assignments with deployment cycles so teams spend as much time as possible together in a unit. Ideally, first-termers will spend their entire enlistment with one unit. The focus of initial efforts is on ground combat units, but will ultimately be implemented throughout the Marine Corps.

The transformation is sustained through the reinforcement of core values while the individual Marine is in the FMF and by holding Marines accountable throughout their careers. This program provides stronger, smarter, and more capable Marines who have the maturity and flexibility to meet the challenges of the 21st century battlefield.

Marine Corps Position

The recruit training process has been strengthened to better prepare Marines for the challenges of the 21st century. The resulting “Transformation” produces more highly trained Marines with a stronger appreciation for the Marine ethos. More cohesive units improve the Corps’ readiness posture and combat capabilities. The daily performance and conduct of Marines reflect the values of the Corps and the ideals of the nation they serve.

Gender Segregated/Integrated Training

Discussion

The purpose of recruit training is simple: to make Marines. The young men and women who arrive at the recruit depots are generally away from home for the first time. They have brought with them diverse perceptions of right and wrong and varied appreciations of permissible behavior. Their experiences with authority figures may have been good or bad, proper or improper, or even abusive. The only thing they have in common is their desire to be a Marine. By capitalizing on that desire, recruit training transforms these individuals into Marines imbued with a common set of values and standards.

Although recruit training teaches basic military skills such as physical fitness, close order drill and marksmanship, it does not train the recruit to fight and survive in combat - that comes later at Marine Combat Training (MCT). Instead, recruit training is more truly a socialization process. Civilians are transformed into basic



Marines. It is a physically and mentally challenging ordeal, one that requires constant supervision. Drill instructors control and manage the transformation of their recruits through constant interaction. They teach core values, institutional rights and wrongs, and what constitutes proper authority. This teacher-student/father-son/mother-daughter relationship is the heart and soul of the recruit training experience.

In gender segregated recruit training, the drill instructor provides impressionable young men and women strong, positive role models. For women, it also removes the pervasive stereotype that only men can be authority figures. They see strong female role models not only in control of them and their group, but also positively interacting with other male drill instructors. Very early in their training cycle, women recruits come to realize that they are expected to be strong, assertive leaders. Gender segregated

training provides an environment free from latent or overt sexual pressures, thereby enabling recruits the opportunity to focus on, and absorb, Marine standards of behavior.

Additionally, gender segregated training takes into consideration the difference in physical strength and endurance between male and female recruits. The recruit training physical conditioning program has two primary objectives; to achieve and maintain a peak level of physical fitness, and to build confidence. Due to strength and endurance differences, initial physical fitness standards are different for male and female recruits. Fully integrated recruit training with a common standard would result in either lowering the male standards or increasing the female failure/attrition rates — neither of which is acceptable.

The case for gender integrated training is often built on the “train as we fight” thesis which argues that men and women should train in gender integrated units because that is the way they will fight. This argument generally misses the point that the Marine Corps, unlike the other services, has a block of training entitled MCT, between recruit training (socialization) and military occupation skills training. It is at MCT that newly forged Marines are actually taught combat skills, and this training is conducted in partially integrated units at MCT-East, Camp Lejeune. Women Marines undergo MCT only at Camp Lejeune because the smaller number of female accessions only justifies a single site. Another important distinction is that MCT occurs after the intense transformation process that produces Marines with strong and clear standards of behavior, and the values, mental and physical toughness, self-reliance, and confidence that are essential to earn the title “Marine.”



After Transformation, Marines are then, and only then, placed in a combat training environment. And most appropriately, it is in this expeditionary training environment that they are organized into gender integrated units for the first time. At MCT, both male and female Marines are taught and led by male and female Marine Officers and Non-Commissioned Officers. Both male and female Marines are exposed to a gender integrated chain of command and the professional conduct between male and female leaders. In tough field conditions they see both male and female leaders in action. The objective is for all Marines to see themselves as members of the same team, committed to performing the same tough duties, mentally and physically, in the same demanding environment. From that experience they develop an appreciation of each other as professionals.

Marine Corps Position

The Marine Corps will continue to make Marines that are tough, dedicated, and imbued with the values of the Corps - Honor, Courage, and Commitment. Throughout this process we will emphasize the dignity of all Marines. Current Marine Corps policy regarding gender segregated recruit training is sound and is supported by the Kassenbaum Baker Congressional Committee chartered to evaluate this policy across the Services. Marine Corps gender integrated training is consistent with the “train as we fight” approach and commences at MCT.



Quality of Life

Discussion

The Marine Corps is committed to efficient, effective, and equitable management and delivery of Quality of Life (QOL) programs and services to Marines and their families wherever they are stationed. Caring for Marines and their families is an essential part of the Marine Corps ethos.

QOL programs directly impact readiness and operational responsiveness. As the Nation's force in readiness, the Marine Corps believes its QOL programs act as a force multiplier to maintain the highest levels of operational readiness and responsiveness. Marines can focus on mission accomplishment when they know that they and their families are supported by a comprehensive system of programs and services that enable them to thrive in the demanding military lifestyle. From a long-term perspective, QOL has a positive effect on recruiting, retention, and motivation to serve. These programs are tools for commanders to enhance, develop, and support Marines on an individual or unit basis. They are also a resource for Marines and their families.

The Commandant's QOL priorities are: pay and allowances, appropriate and responsive health care, bachelor and family housing, and proactive, supportive community support programs. These programs are consistent with those of DoD and the Marine Corps has committed significant resources and effort to them.

The Marine Corps has revolutionized its approach to the delivery of community support programs to Marines and their families in the 21st century. Marine Corps Community Services (MCCS) bundles the capabilities of previous support systems, such as Morale, Welfare and Recreation; Voluntary Education; and Family Services, and has added significant service dimensions designed to build strong Marines, families, and communities. MCCS is an integrated support system, which eliminates bureaucratic stovepipes and empowers commanders to apply resources in the best ways to achieve results.

MCCS is delivered through five operational pillars: Marine Corps Family Team Building, Semper Fit, Personal Services, Business Operations, and General Support. These pillars operate interdependently to provide a combination of programs and services that Marines need. MCCS provides commanders a fully equipped toolbox to specifically address basic life requirements, prevention and intervention for social ills, health and fitness support, and other basic community welfare requirements.

Marine Corps Position

The Marine Corps has made a significant and ongoing commitment to Quality of Life programs in order to sustain and support Marines and their families thus enhancing retention and readiness.

Marine Corps Total Force

Discussion

The Marine Corps remains central to the nation's efforts to promote and protect its many interests. There are currently 172,600 Marines on active duty. Of that total, over 114,000 are in the operating forces and nearly 30,500 are forward deployed, forward based, forward stationed, or deployed for training around the world. Key to our total force is the 39,600 men and women of the Marine Corps Reserve stationed at 184 sites throughout the country. In addition to our traditional missions, Marines also provide support to the intelligence community, airlift support to the Executive Branch, and a Chemical/Biological Incident Response Force to the nation as a whole. Marines provide security at key naval installations and guard diplomatic posts at 123 sites, worldwide.

Reserve Marines perform an impressive array of augmentation and reinforcement tasks as part of the Marine Corps total force.

Still others — to include both uniformed Marines and 15,000 “Civilian Marines” — serve in the supporting establishment. Their efforts to recruit, train, retain, administer, and supply today's Marine “total force” directly support the “platforms” from which we launch our forces. Additionally they provide the operating forces the communities that sustain our Marine families. The Corps has recently identified 1,200 Marines in supporting billets that will be replaced by civilians and transferred to the operating forces. This is a resource efficient alternative that allows the Corps to man the operating forces at the highest possible level.

During FY00, the Marines reestablished the middle tier of their expeditionary warfighting capability, the Marine Expeditionary Brigade. These mid-sized MAGTFs can operate independently, subsume the smaller Marine Expeditionary Unit, or enhance the larger Marine Expeditionary Force. Recently the 2nd Marine Expeditionary Brigade participated in Operation Dynamic Mix in Greece and Turkey and 1st Marine Expeditionary Brigade participated in Natural Fire/Native Fury with the defense forces of Kenya, Tanzania, and Uganda. These exercises clearly demonstrated the deployability, versatility, sustainability, and economy of the expeditionary brigades.

Marines, active and reserve, participated in operations in the Balkans, East Timor, and in the skies over Iraq in FY00. Marines performed in a wide variety of other missions to include humanitarian relief efforts in Turkey, and in Central and South America. The Corps also provides valuable service here at home through its continued support of counter narcotic operations along the nation's borders and its recent contributions to fire-fighting operations in Montana.

A manpower intensive organization, the Marine Corps continues to believe the individual Marine is our most important and effective weapon. Our emphasis on robust operating forces and lean support forces is visible in

both active and reserve components. Our active component is young and the grade structure is lean. Over 28,000 Marines are teenagers. The average age of enlisted Marines is just 25 years, 67 percent of them are Corporals or below, and 68 percent are in their first enlistment.

The Marine Corps Reserves continue to make an extraordinary contribution, both domestically and abroad. As part of our total force, reserve Marines augment and reinforce the regular component, performing a variety of missions. In FY00, Marine Civil Affairs Detachments were called upon to provide support in Bosnia, Kosovo, and with several forward-deployed Marine Expeditionary Units (MEU); reserve KC-130s supported Operation Northern Watch and continue to be called upon to support our MEUs. Infantry, aviation, and combat service support units, and individual reservists routinely participate in exercises around the globe. These have included New Horizons in South America; Cornerstone in Albania; Cobra Gold in Thailand; Ulchi Focus Lens in Korea, Combined Endeavor in Germany; and ASCIET, Rolling Thunder, Kernel Blitz, and various minor exercises in the United States. The Marine Corps Reserve efficiently augments, in both peace and war, the active component effectively creating a seamless total force that is ready when called upon.

The Marine Corps total force includes over 2,300 retired Marines, preassigned to mobilization billets throughout CONUS bases and stations. The capability to call upon a mobilization population of 20,000 retired Marines is included in all pre-mobilization and contingency planning. Their experience and dedication to Corps and country can be counted on in the event of a national crisis.

The total force is not complete without our civilian personnel, who are employed in a wide variety of professional, technical, trade, and administrative functions. These "Civilian Marines" provide essential continuity in their functional areas and are a crucial component of the Marine Corps total force. With a population of approximately 17,000, their manning of the supporting establishment allows Marines to fill billets in operational units thereby enhancing training, readiness, and sustainability.

Marine Corps Position

The Marine Corps draws upon two hundred and twenty-five years of experience and a proven formula to ensure that every Marine is prepared to meet uncertain and varied challenges. Maintaining our expeditionary readiness depends on high quality active, reserve and civilian Marines. These individuals are the cornerstone of our Corps. Their training, leadership, and quality of life will continue to be of the utmost importance.

Martial Arts Program

Discussion

CMC directed, in July 2000, the development and implementation of a Marine Corps Martial Arts Program. The program goals are to improve warfighting capabilities of individual Marines and units, enhance Marines' self-confidence and esprit de corps, and to further cultivate a warrior ethos in the Corps. This program will heighten the personal development of each Marine in a team framework, using a standardized, trainable, and sustainable close combat system. This design will enhance Marines' minds, bodies, and spirits thereby substantially improving overall unit combat readiness throughout the total force.

Marine Corps Martial Arts is distinctively a weapons-based system, integrating combat equipment, physical challenges and tactics typically found in the combat arena. This comprehensive program not only imparts traditional fighting skills and techniques, but is inextricably linked to and derives its strength from core values. It will reinforce the fabric of the Corps' high moral principles as it equips each Marine of the total force. A Marine will receive this training throughout his/her career, and may advance through a system of belt rankings from tan belt through sixth degree black belt. The belts are worn with the utility uniform. The belt system is comparable to other martial arts only in that it's a graded progression from basic to advanced skills in fighting techniques.

What makes this system unique is the requirement for the Marine to display equal mastery of the mental and character disciplines; belt progression is as follows:

Tan	Basic fundamentals of the mental, physical and character disciplines.
Grey	Introduction to intermediate fundamentals of each discipline.
Green	Intermediate fundamentals of each discipline.
Brown	Introduction to advance fundamentals of each discipline.
Black	Advanced fundamentals.

In addition to displaying proficiency in the mental, physical, and character disciplines, promotion to each belt level has rank, time in grade, age, PME requirements, as well as, the Marine's senior leader's recommendation.

Marine Corps Position

This total force strategy embraces an aggressive implementation plan that began in earnest during October 2000. Martial Arts Mobile Training Teams were launched from TBS (The Martial Arts Program Training Center) certifying instructors at the MCRDs, SOIs, and all three MEFs. Martial Arts training has been incorporated into the MCRD and The Basic School training schedules. Contracts for training equipment sets and rigger belts were let effecting immediate delivery to support Martial Arts training at entry-level and infantry organizations. All remaining forces will be completely outfitted by the end of FY02. The first Martial Arts Instructor Trainer course graduated at TBS in February 2001 with students attending from throughout the operating forces to include the Reserves.

Given the political and military strategic global challenges, Martial Arts Training will prove to be a force multiplier within the Corps, not just at the point of impact but also at the elemental level. Marines, steeped in the combined arms tradition and hardened with martial discipline, will stand for the highest attainment of core values, and will continue to bring the Corps success no matter the challenge, no matter the environment.



Power Projection Capabilities

Discussion

Rapidly projecting decisive military power is key to the National Military Strategy. Amphibious and maritime repositioning forces play a critical role in U.S. power projection. Replacing and revitalizing the essential platforms and improving the effectiveness of these expeditionary forces is a major goal. To that end, the Marine Corps will continually strive to blend advances in technology with newly developed operational concepts. Today, by rapidly implementing the strategic and operational principles of EMW, the Navy-Marine Corps Team is taking full advantage of emerging technology as well as the littoral environment and its maneuver space. These advances in materiel and concepts will provide a tremendous increase in the flexibility, agility, and effectiveness of MAGTFs. The result will be a significant increase in naval power projection capabilities. The following initiatives are key to the achievement of Marine Corps operational objectives:

Advanced Amphibious Assault Vehicle (AAAV). The AAAV is critical to the Corps' future ability to project power inland from amphibious ships. Significant enhancements in speed, firepower, and survivability for the AAAV will allow a faster buildup of combat power ashore, ensuring greater force survival and effectiveness. AAAV allows tactical maneuvers from ship to inland objectives from over-the-horizon, creating significant operational advantages. The AAAV will replace the current AAV7A1 family of assault amphibious vehicles that are now almost 30 years old. The first prototype AAAV was successfully rolled out in 1999 and AAAVs were tested in several locations throughout 2000. They are scheduled for fielding to the operational forces in 2006.

MV-22 Osprey. The MV-22 tilt-rotor aircraft will allow combat power to transition ashore faster and increases the depth of the battlefield through its enhanced range, endurance, and flexibility. It will replace the aging medium lift fleets of CH-46E Sea Knight and CH-53D Sea Stallion helicopters. While fulfilling the Marine Corps' critical medium lift requirement, the MV-22's increased capabilities will provide significant tactical and operational leverage.

Landing Craft, Air Cushion (LCAC). The LCAC is a high-speed, ship-to-shore, over the beach amphibious landing craft that can transport equipment, personnel, and weapons systems from ships located beyond the horizon, through the surf zone, and across the beach to hard landing points beyond the water line. The LCAC cargo deck can accommodate the majority of combat and combat support equipment currently in the Marine Corps inventory to include the M1A1 Tank. A service life extension program initiated in FY01 and consisting of a buoyancy box replacement, navigational upgrades, enhanced engines, and a deeper skirt, will ensure the viability of LCAC into the future.



Maritime Prepositioning Force (Enhancement) (MPF(E)). MPF(E) is a three ship conversion program funded in the National Defense Sealift Fund. Lessons learned during Operations Desert Shield/Storm, in Somalia and on annual exercises, have highlighted the need to add additional capabilities to the current Maritime Prepositioning Force (MPF) program. Specific capabilities added are an Expeditionary Airfield (EAF), Naval Mobile Construction Battalion, and Navy Fleet Hospital. In addition, space was included for the restoration of equipment and supplies removed from existing MPF ships due to the introduction of larger, modernized equipment. Prepositioning of these additional capabilities and equipment with the existing Maritime Prepositioning Ships Squadrons (MPSRONS) will significantly enhance the capabilities available to the supported Commanders-in-Chief (CINCs). The first MPF(E) ship has been delivered and has joined MPS Squadron 1 in the Mediterranean. The second and third vessels will join MPS Squadrons 2 and 3 over the next two years.

Shallow Water Mine Countermeasures. This program is designed to improve critical deficiencies in mine countermeasures. The development of technology and systems to detect, clear, and neutralize these threats is vital to allow Marine forces to maintain presence, to maneuver unencumbered throughout the littoral areas, and to effectively project combat power ashore.

Naval Surface Fire Support (NSFS). NSFS is an essential dimension of our power projection capabilities. Efforts to upgrade current ships are focused on modifications to the existing Mark 45 gun mount and the development of extended range guided munitions and the Land Attack Standard Missile. The long-term program calls for the development of a larger caliber gun and an extended range missile system. These enhancements will provide a critical boost to Marine amphibious capabilities by adding fires with more range, responsiveness, accuracy, and lethality to maneuver forces ashore.

Joint Strike Fighter (JSF). The JSF will provide the Marine Corps with a state-of-the-art, next generation, short takeoff and vertical landing (STOVL) aircraft to replace the AV-8B and F/A-18A/C/D. It will be a superior performance, stealthy, multi-mission jet aircraft, possessing state-of-the-art technology, which can operate with full mission loads from amphibious class ships or austere expeditionary airfields. This blend of stealth, performance, and basing flexibility will enable the STOVL JSF to perform a broad range of missions including: escorting the MV-22; striking critical deep targets; providing armed reconnaissance, close air support, tactical reconnaissance; suppression of enemy air defenses; and conducting active air defense missions. With the STOVL JSF, Marine aviators will be able to support the full range of mission profiles and provide Marine ground forces the precise and timely fire support needed on the 21st century battlefield.

Marine Corps Position

Technological advances enable the Corps to rapidly move EMW from the concept stage to reality. The Corps' acquisition focus is to leverage technological initiatives that improve the mobility, flexibility, and lethality of MAGTFs in a cost-effective manner. These initiatives enhance the Marine Corp's contributions to the National Military Strategy.

Advanced Amphibious Assault Vehicle

Discussion

In the 1980s, the Navy and Marine Corps developed the concept of over-the-horizon (OTH) assaults to avoid enemy strengths, exploit enemy weaknesses, and protect Navy ships from increased land-based missile threats and sea-based mine threats. This littoral warfare concept has matured into the Expeditionary Maneuver Warfare (EMW) capstone concept. The AAV Program, together with the MV-22 Osprey tilt-rotor aircraft and the Landing Craft, Air Cushion (LCAC), will provide the tactical mobility assets required to spearhead EMW. Furthermore, the AAV is critically important to maneuvering a mobile and survivable surface assault force that can quickly secure inland objectives. Its swift and independent transit from OTH is the tactical assault capability currently lacking to enable LCACs to perform the follow-on assault and logistics functions for which they were originally designed. In addition to its greatly increased speed on the water, the AAV will provide superior land mobility, tremendously increased firepower, and advanced survivability features that compare to the best land fighting vehicles in the world.

The AAV's unique capabilities include: (1) over three times the water speed of the current AAV7A1; (2) equal armor protection with the current AAV7A1 (already enhanced by applique armor); (3) the ability to defeat future threat light armored vehicles; (4) land mobility equal to or greater than the M1A1 tank; (5) lift and carrying capacity for a reinforced rifle squad; and (6) Nuclear, Biological, and Chemical (NBC) protection for both the crew and embarked personnel (the only combat vehicle system for infantry in the U.S. inventory that does so). All of these capabilities will increase the survivability of the amphibious surface assault forces and the flexibility of future MAGTFs.

Marine Corps Position

The AAV Program will allow the Navy and Marine Corps to seamlessly link operational maneuver at sea with maneuver ashore. It provides a critical capability for OTH forcible entry — a key component of EMW.



Amphibious Ships

Discussion

Naval amphibious ships combined with embarked Marines provide forward presence and flexible crisis response forces for employment in support of foreign policy objectives. These forces provide the most formidable amphibious forcible entry capability in the world. The development and maintenance of this capability is the statutory responsibility of the Marine Corps as directed by Congress in Title X. Amphibious lift requirements are formulated to support the National Military Strategy, satisfy combat surge requirements, and can also be tailored to meet real world day-to-day commitments.

Big deck amphibious assault ships (LHD, LHA) are the centerpiece of naval expeditionary forces and are essential to maintaining amphibious lift and power projection capabilities. Currently 11 big deck ships are in the inventory. The twelfth big deck, LHD 7, is under construction and will be commissioned in June 2001. In FY01 Congress approved incremental procurement of LHD 8. LHD 8 transition ship and follow on LHA replacement ships will better serve the Marine Corps' interests than the aged LHA 1 TARAWA class ships.

The warfighting requirement — the capability the Marine Corps strives to provide to our nation—remains three Marine Expeditionary Brigade (MEB) Assault Echelons (AE), which currently equates to 14 Amphibious Ready Groups (ARGs). The long standing requirement for an amphibious force structure plan that supports lift for three MEB AEs, recently reemphasized by congressional testimony and the SECDEF's Report On Naval Vessel Force Structure Requirements, remains a priority requirement.

Fiscal constraints, however, have limited amphibious lift to a programmatic goal of two and one half MEB AEs. This capability will be achieved with active amphibious ship force structure upon delivery of the twelfth LPD-17 class ship. In the meantime, maintaining LHAs and LSTs in a reduced operating status called the Amphibious Lift Enhancement Plan (ALEP) is a temporary fix meant to fill the gap between today's shortfall and the delivery of the LPD-17 ship class. This shortfall in active amphibious ships remains an area of concern. Accordingly, the LPD-17 program is essential to providing an air-capable, LCAC-capable, wet-well ship that is optimized to meet USMC surge lift requirements.

Marine Corps Position

The Marine Corps continues to support the Navy's shipbuilding program to achieve the fiscally constrained two and one half MEB AE amphibious lift capability but maintains a warfighting requirement to achieve three MEB AE amphibious lift. Modernization of the amphibious ship fleet, to include the timely replacement of the LHA 1 TARAWA class with ships capable of supporting current and future Marine Corps requirements remains a priority.

SAN ANTONIO Class Landing Assault Ship

Discussion

The operational flexibility and capability of the amphibious fleet will be significantly enhanced with the FY04 delivery of LPD-17, USS SAN ANTONIO, the first of twelve new landing assault ships to be procured by FY06. As a class, these ships will overcome amphibious lift shortfalls caused by the decommissioning of aging LPDs, LSTs, LHAs, and LSD-36s and will help the US Navy to achieve its fiscally constrained amphibious lift requirement of two and one half Marine Expeditionary Brigades (MEB) Assault Echelon (AE). These versatile ships will have a 40 year life expectancy and complement the LHD/LHA large deck amphibious transports providing simultaneous wet-well and flight deck capabilities. Additionally, the LPD-17 class will eliminate our reliance on the Amphibious Lift Enhancement Plan (ALEP), a temporary program meant to fill the current shortfall in amphibious lift.

Each of the 25,000 ton ships will carry approximately 700 Marines, have a vehicle stowage capacity of 25,000 square feet, a well deck sized for two LCACs, and a flight deck capable of simultaneous operation of two CH-53E Super Stallions or two MV-22 Osprey tilt-rotor aircraft, or four CH-46E Sea Knight helicopters. The LPD-17 class will be outfitted with the Rolling Airframe Missile system for self-defense and will incorporate design features presenting a significantly reduced radar cross section, compared to previous amphibious ships.

Marine Corps Position

Maintaining projected delivery schedules and attaining operational readiness of this 12 ship class is vital to achieving the fiscally constrained goal of two and one half MEB AE equivalents of amphibious lift. Ensuring that the ship maintains a robust C4I and self-defense capability as threat systems evolve is crucial to survivability in the littoral environment.



Maritime Prepositioning Force

Discussion

The Maritime Prepositioning Force (MPF) is a strategic power projection capability that combines the capacity, flexibility and responsiveness of prepositioned sealift with the speed of strategic airlift. Strategically positioned around the globe, MPF supports the Strategic Mobility Enhancement initiative and the National Military Strategy through forward presence and crisis response. These ships are organized into three Maritime Prepositioning Ships Squadrons (MPSRONS): MPSRON-1, based in the Mediterranean; MPSRON-2, based at Diego Garcia; and MPSRON-3, based in the Guam-Saipan area. MPSRONS are interoperable, with ships from one MPSRON interchangeable with ships from any other. MPF is flexible (from a Marine Expeditionary Unit to a Marine Expeditionary Force), employing from one to all fourteen ships (sixteen when all funded MPF(E) ships are fielded). When needed, these ships move to a crisis region and offload either in port or offshore. Offloaded equipment and supplies are then married up with Marines arriving at nearby airfields. The end result is a combat ready Marine Air-Ground Task Force (MAGTF) rapidly established ashore with minimal reception facilities. MPF is especially responsive to regional crises or natural disaster relief. MPF forces provide enough equipment and supplies to support a MAGTF (MEB is standard for MPF support) for its first 30 days of operations.

MAGTF deployment planning and training is conducted by the Commanding Generals, II MEF (MPSRON 1); I MEF (MPSRON 2); and III MEF (MPSRON 3). The Commander, Marine Corps Logistics Bases, Albany, Georgia is responsible for attainment, prepositioning and maintenance of the Marine Corps supplies and equipment on each MPSRON. This is accomplished in conjunction with the Marine Expeditionary Forces (MEFs) through a maintenance cycle program conducted at the Blount Island facility in Jacksonville, Florida. The MPF ships are civilian owned and operated under long-term charter to the Military Sealift Command (MSC).

Marine Corps Position

A MPF remains a cost-effective, proven, and relevant capability for use in responding to crises overseas. It significantly increases responsiveness to contingencies and improves operational flexibility for combat, disaster relief, and humanitarian assistance operations.

Naval Surface Fire Support

Discussion

EMW places unprecedented demands on Naval Surface Fire Support (NSFS) for range, accuracy, and responsiveness. Sea-based fires will be challenged to support expeditionary operations and integrate fires with the Joint force over an extended battlespace. The Navy has developed a two-phase modernization program to upgrade NSFS capabilities. Phase One includes improving and upgrading capabilities of the CG-47/52 and DDG-51 Class ships. Phase Two is the new land-attack destroyer, DD 21, and its associated weapons systems.

Phase One of the Navy's modernization program includes modification of the current 5 inch gun mount, improvements in supporting arms coordination and fire control systems, and the development of the Extended Range Guided Munition (ERGM), Land Attack Standard Missile (LASM), and Tactical Tomahawk (TACTOM). ERGM is a guided projectile fired from CG and DDG 5 inch 62 caliber gun systems with a range up to 63 nautical miles. LASM will be a supersonic surface to surface missile that will have a range far in excess of naval guns. It is intended to provide a highly responsive, accurate, all-weather means of addressing critical targets and providing support to Marines deployed outside the protective range of naval gunfire. C2 system improvements include the Naval Fires Control System (NFCS) on surface combatants and command platforms. Additionally, initiatives to integrate Navy and Marine supporting arms coordination systems on the command platforms are underway.

The second phase of NSFS modernization will be realized with the ZUMWALT Class Destroyer (DD 21) which is being developed from the keel up with a focus on enhancement of land-attack capabilities. The DD 21 will be constructed with the Advanced Gun System (AGS) and a land-attack missile capability expected to be based on an advanced LASM or Tomahawk weapon system. The AGS will be a 155mm system capable of firing twelve rounds per minute to ranges beyond 63 nautical miles. The land-attack missile will be designed to meet the needs of the MAGTF commander, and will provide increased range, accuracy, lethality, and responsiveness over that provided by LASM.

Marine Corps Position

Phase One of the Navy's modernization program will provide an interim NSFS capability. Phase Two will provide increased range, accuracy, lethality and responsiveness required to support NSFS. These improvements will give the MAGTF commander an essential capability for executing expeditionary operations.

Mine Warfare

Discussion

This essential warfare capability is integral to the ability of Naval Forces to effectively open and maintain sea lines of communication and to operate in the littoral battlespace. A considerable array of modern mine countermeasure (MCM) systems continues to be developed and procured for MCM forces.

The U. S. Navy's dedicated MCM force is comprised of 14 MCM-1 class ships, 12 MHC-51 class mine countermeasures ships and two squadrons of MH-53 airborne mine countermeasures helicopters. It also includes Navy Special Operations Forces composed of 15 MCM specialized explosive ordnance detachments, 2 MCM Marine Mammal System (MMS) detachments, and a specialized Very Shallow Water Detachment. The experimental Very Shallow Water (VSW) MCM Detachment, composed of Navy Explosives, Ordnance and Disposal personnel; Navy SEALs; and Force Reconnaissance Marines has proven a viable near term solution to critical operational shortfalls in VSW regions. The detachment is comprised of three platoons consisting of mammals, divers, and unmanned underwater vehicles (UUVs), and brings a critical capability to a technologically challenging environment via fly-in or transportation on ARG shipping. In the mid-term, the intent is to replace the divers and mammals with semi or fully autonomous UUVs that can detect, classify, and neutralize mines in the VSW region. Dedicated MCM forces are task-organized in a triad of Surface MCM (SMCM), Airborne MCM (AMCM), and EOD. This triad provides a sustained, combined capability to conduct MCM operations on short notice. The USS Inchon (MCS-1) provides a dedicated MCM command, control, and support ship to coordinate and support multi-faceted MCM operations with surface, air, and Special Operations Forces.

The Navy's forward deployment of MCM ships in the Arabian Gulf and in the Western Pacific has significantly reduced the time required for SMCM forces to respond to multiple CINC MCM requirements in two likely areas of confrontation. Near term improvements to the dedicated force include upgrading the AN/AQS-14 airborne mine hunting sonar, improving the MK-105 influence minesweeping sled system, and providing the MH-53 with an organic mine neutralization system.

The Navy has invested in an aggressive programmatic initiative to deploy a fully capable organic MCM systems package with a Carrier Battle Group (CVBG). This system's capability will allow the Task Force to conduct mine reconnaissance, mine hunting, minesweeping, and mine clearance supporting maneuver in a mined environment. The long term goal is outfitting

all Carrier Battle Groups and Amphibious Readiness Groups with some level of organic MCM systems packages, keeping ships and personnel out of mine danger areas and effectively conducting MCM operations.

Focused science and technology and developmental efforts are producing technological solutions to difficult mine warfare problems. The Remote Mine Hunting System (RMHS) is undergoing experimentation to improve organic MCM capability. The RMHS will provide an organic, surface ship-hosted mine reconnaissance capability.

Marine Corps Position

Critical deficiencies in MCM currently exist in the Shallow Water and Surf Zone Mine Countermeasure Programs. Focused science, technology and developmental efforts to provide capabilities to detect, avoid, clear, and neutralize mine and obstacle threats will allow optimization of naval expeditionary force and power projection capabilities.



Marine Corps Aviation

Discussion

The mission of Marine Corps aviation is to provide the MAGTF commander with an Aviation Combat Element (ACE) capable of conducting air operations in support of the seizure and defense of advanced Naval bases, and conducting such land operations as may be directed by the Joint Force commander. The ACE supports the MAGTF through the six functions of Marine aviation: assault support; anti-air warfare; offensive air support; electronic warfare; control of aircraft and missiles; and aerial reconnaissance. The ACE can organize at any level from entire air wings to small detachments to fulfill the needs of the MAGTF. When combined, ACE assets create scalable, responsive, and highly versatile forces capable of supporting the full range of MAGTF and Joint operations.

The unique expeditionary and adaptable nature of Marine aviation allows it to operate effectively across the full spectrum of basing options. The ACE's ability to self-deploy and operate from austere forward operating bases, expeditionary airfields, amphibious platforms, and aircraft carriers makes it an adaptable, highly responsive, and lethal force.



Fully integrated aviation support is a key enabler that provides the ACE and MAGTF with tactical flexibility to support a variety of operational scenarios. The Marine Wing Support Groups (MWSG) and Marine Aviation Logistics Squadrons (MALS) provide sustainability to the ACE through numerous strategic, operational, and tactically optimized aviation logistics and support programs. The MWSG and subordinate Marine Wing Support Squadrons (MWSS) provide all essential aviation ground support requirements necessary to support any level of MAGTF from Forward Arming and Refueling Points (FARPs) to established Forward Operating Bases (FOBs). Examples of service support include security/force protection, messing, crash fire rescue, meteorological support and airfield construction. MALS provide the ACE with supply and intermediate level maintenance support. MALS also provide scalable detachments, based on the requirements and type of aircraft deployed, with the flexibility of supporting

the ACE either from an Aviation Logistics Support Ship (TAVB) or from ashore. These unique and innovative logistics support organizations provide Marine aviation with its expeditionary character and facilitate the ACE's responsive support to the MAGTF in any environment.

Marine Air Control Groups (MACG) provide the ACE commander with the Marine Air Command and Control System (MACCS) agencies to exercise command and control of aviation assets necessary to support MAGTF operations. The MACCS consists of various air command and control agencies designed to provide the ACE commander with the ability to plan, supervise, and influence the application of the six functions of Marine Aviation. The MACG is responsible for providing, operating, and maintaining the principal MACCS agencies, Joint, multinational, and civil air command and control systems.

The ability of Marine Tactical Aviation (TacAir) to integrate with, and reinforce, naval operations is well documented. Marine squadrons deployed aboard aircraft carriers in World War II, the Korean War, and during Vietnam. Today, four Marine F/A-18 squadrons are integrated with Navy carrier air wing deployments and most MEU(SOC)s include a complement of AV-8Bs aboard ship and KC-130s based at various strategic locations. Marine



squadrons operating as part of Navy carrier air wings or off amphibious ships have recently participated in operations such as Operation: Allied Force, Northern and Southern Watch, Deny Flight, Deliberate Force, Silver Wake, and Noble Anvil. Marine aviation assets not assigned to support shipboard deployments continue to maintain the capability to do so.

During the early days of Operation Nobel Anvil, Marine Aviation responded with TACAIR assets within 48 hours of the deployment order. Operating from two air bases in Italy, austere airfields in Taszar, Hungary, and from amphibious ships, fixed-wing aircraft commenced combat operations within days of arrival into the EUCOM area of responsibility. EA-6B assets supported Joint Task Force (JTF) operations from bases in Italy and provided over 30 percent of the total electronic warfare assets in theater. The capability to task organize and deploy assets aboard ships or to expeditionary land bases anywhere in the world within 72 hours provides the MAGTF with the ability to project a tremendously lethal, adaptable, and responsive aviation element in response to any challenge.



Marine Aviation Assault Support assets contribute significantly to the success of the MAGTF. Rotary-wing aircraft and KC-130s provide the MAGTF with transportation, in-flight and rapid ground re-fueling, assault support, and offensive air support. In 1996, demonstrating flexibility, scalability, and our expeditionary nature, the Amphibious Ready Group (ARG) and MEU(SOC) reorganized their forces in anticipation of conducting

multiple Non-Combatant Evacuation Operations (NEO) thousands of miles apart in Albania and Zaire. Within a period of two weeks, this MAGTF split, transited, planned, and conducted final preparations for NEOs in both locations. The LPD and LSD remained in the Mediterranean, conducted the NEO in Albania, and then proceeded to Puerto Rico where they rejoined the LHA returning from Zaire and reassembled the MEU MAGTF. Once reassembled, the ARG/MEU(SOC) continued with the remainder of their deployment. This splitting of the MEU's resources, rescaling into smaller MAGTFs and covering multiple operations, demonstrates the flexibility and responsiveness of the MEU and Marine aviation. More recently, Marine Corps participation in Kosovo revalidated the MAGTF and aviation's ability to task-organize and project an adaptable and credible warfighting capability. Marine Corps rotary-wing aircraft, while forward deployed at sea and operating from a FOB ashore, supported Operations Joint Guardian and Shining Hope by conducting missions that ranged from humanitarian assistance to close air support.

Marine aviation has been, and will continue to be, ready to deploy a scalable, highly trained, task organized expeditionary ACE capable of conducting missions across the continuum of conflict in support of the MAGTF in either Joint or coalition environments. In a world of diminishing host nation support and basing options, the ability to provide the National Command Authorities (NCA) with self-contained Marine Air-Ground Task Forces, capable of executing a wide range of missions at a moments notice while operating from a variety of locations, will remain the Marine Corps' forte.

Marine Corps Position

The Marine Corps brings unique capabilities to the battlefield which, when integrated under Joint doctrine, improves Service interoperability and overall warfighting effectiveness. Providing a capable ACE to the MAGTF commander remains the primary mission of Marine aviation. Units scheduled in support of the MAGTF will continue to train to a level of proficiency that satisfies the requirements of the MAGTF commander.

Marine Corps Aviation Modernization

Discussion

The Marine Corps has initiated several significant aviation modernization programs to restore and enhance the capabilities of existing aviation platforms. This modernization effort is significant to the Marine Corps' overall recapitalization effort. It has allowed the use of current and enhanced capabilities to sustain a combat edge while the next generation of aircraft, weapon systems and munitions is developed. Vital to the Marine Corps' aviation modernization effort is the initiative to remanufacture our fleet of aging AV-8B attack aircraft. Other key aviation modernization initiatives include the F/A-18A upgrade, EA-6B upgrade, CH-53E upgrade, CH-46E Engine Reliability Improvement Program (ERIP), AH-1/UH-1 upgrade, the Advanced Tactical Airborne Reconnaissance System (ATARS), Fire Scout (VTUAV), Pioneer (UAV), and Aviation Command and Control Modernization. These efforts are vital to ensuring a capable and potent Marine Corps in the future.

The AV-8B Remanufacture Program upgrades day attack aircraft into a more capable radar/night attack variant. The wing and many original items are retained. Added to a new fuselage are a night attack avionics suite (Navigation FLIR, digital moving map, color displays, Night Vision Goggle lighting) and a surplus APG-65 multi-mode radar from the F/A-18. The aircraft receives the more powerful and reliable Pegasus (408) engine and an additional 6,000 hours of airframe life for 80 percent of the cost of a new aircraft.

As a further improvement in the capability of the aircraft, the AV-8B will receive a significant increase in lethality and survivability through the procurement of the Litening II targeting pod. The third generation Forward Looking Infrared (FLIR), dual Field of View TV seeker, and IR marker will provide improved target recognition and identification while the Laser Designator and Laser Spot Tracker will provide precision targeting capability. The Litening II will enable the AV-8B to engage targets at substantially increased ranges while employing current and future generations of precision munitions, thus improving survivability in the modern battle space. Furthermore, the enhancements to precision engagement of targets will reduce the risk for collateral damage and fratricide.

The F/A-18A Upgrade consists primarily of avionics and hardware upgrades which allow the F/A-18A to process and utilize the updated versions of the F/A-18C software and accessories. The modified "A" aircraft will be compatible with Lot XVII F/A-18C aircraft; an aircraft 8 years newer. This upgrade program will enable the "A" aircraft to employ all current and programmed future weapons. A large portion of this modification enhances commonality between

the “A” and “C” aircraft, which reduces the logistics footprint and reduces pilot and maintenance training, as well as mitigating obsolescence issues. The Marine Corps expects the “A” model aircraft to remain in the active inventory until the 2015 timeframe.

EA-6B Upgrades maintain Marine Prowlers as an essential combat-proven part of the MAGTF and the Joint force. The cornerstone of the modification, repair, and upgrade plan is the Block 89A-weapon system upgrade. Block 89A includes ARC-210 radios (SINGARS/Have quick capable), Embedded Global Positioning System/Inertial Navigation System (EGI), and an enhanced AYK-14 mission computer. Block 89A is the baseline aircraft configuration for the next and last expected major weapon system upgrade for the Prowler, the ICAP 3. The ICAP 3 weapon system will be a major warfighting capability that improves the receiver suite for the first time in 30 years. The improved receivers will enable more precise jamming while also improving aircrew situational awareness and reducing lifecycle costs. As the EA-6B fleet begins to reach the end of its airframe service life, the re-winging and upgrades are critical to extending the aircraft’s viability through 2015. The Marine Corps is scheduled to receive 10 Block 89A’s in FY01 and FY02 for a total of 20 aircraft. ICAP 3 is scheduled for introduction in FY05.

The CH-53E Upgrade Program is a cost-effective solution to maintaining the Super Stallion as the premier heavy lift aircraft through the year 2025 when a Joint Common Lift aircraft can be procured. The current fleet of aircraft begins to reach the end of its service life in this decade. Beyond service life extension needs, a comprehensive upgrade is also required to effectively meet the MAGTF warfighting requirements over the next 25 years. To properly and economically support shipboard-based expeditionary maneuver warfare for the Marine Corps in the 21st century, upgrades to the CH-53E will address increased range and payload, Operations and Support (O&S) cost reductions, commonality-where possible-with other Assault Support platforms, and digital connectivity and interoperability. The CH-53E upgrade program is specifically designed to focus on these areas using a six-pronged effort:

MV-22/KC-130J engines, improved main rotor blades, improved external cargo hook system, elastomeric rotor head, common cockpit, and service life extension. At roughly one-fifth the cost of a replacement aircraft, these upgrades are predicted to reduce O&S costs by 25 percent while more than tripling the payload of the aircraft.

The CH-46E Engine Reliability Improvement Program (ERIP) is essential to keep the CH-46E a viable and supportable airframe throughout the Marine aviation “transformation” until its full replacement by the MV-22 Osprey. By

replacing the T58-GE-16 engine core and accessories, ERIP will arrest the downward trend in engine health, increase engine reliability, and restore operational power margins while providing a significant reduction in fleet labor and support costs.

The AH-1 and UH-1 Upgrade is essential to ensuring the MAGTF possesses credible rotary-wing air support and utility support platforms for the next 20 years. In 1995, the Secretary of the Navy approved the Marine Corps program to upgrade both utility and attack helicopters. This program, known as the H-1 upgrade, modernizes the entire fleet (acquisition objective of 100 UH-1Y and 180 AH-1Z aircraft). The H-1 remanufacture program builds on the existing aircraft capabilities, takes advantage of planned improvement programs (COMNAV, Electronic Warfare and NTIS), and upgraded systems to provide the Marine Corps with an advanced fleet of utility and light attack helicopters. At the center of the upgrade is the installation of a four-bladed rotor system, a newly developed drive train, and a more powerful T700 engine. The addition of an integrated glass cockpit with modern avionics systems will provide a more lethal platform as well as enhanced Joint interoperability through the digital architecture and the installation of DCS 2000 radios. In sum, this program incorporates all previously funded or planned modifications into one program, avoiding the cost of a “new start” replacement aircraft.

Additionally, the H-1 upgrade program uses components that are 85 percent common between the AH and UH aircraft and has coined a new word “identity.” Through use of the same major components — drive train, cockpit and software — logistical support requirements will be greatly simplified resulting in more space available on already space-constrained amphibious and MPF ships. Moreover, these improvements will make the Marine Corps’ attack and utility helicopter capabilities more compatible with the performance demands of all future warfighting concepts.

Operational enhancements include a dramatic increase in range, speed, payload, and lethality of both aircraft while significantly decreasing their logistic footprint. The utility variant will operate at twice the current range with double the payload. The attack variant will realize similar performance increases with the ability to carry twice the current load of precision-guided munitions. Both aircraft will achieve cruise speeds of over 150 knots.

The H-1 upgrade program is an economical and comprehensive upgrade of both UH-1N and AH-1W helicopters that will resolve existing operational safety issues while significantly enhancing the capability and operational

effectiveness of the attack and utility helicopter fleet. A key modernization effort, the H-1 upgrade will provide a bridge until the introduction of an advanced rotorcraft design in the 2020 timeframe.

The Advanced Tactical Airborne Reconnaissance System (ATARS) is designed for the F/A-18D to restore a manned airborne reconnaissance capability to the MAGTF. The ATARS incorporates multiple sensor capabilities including electro-optical, infrared, and synthetic aperture radar. The man-in-the-loop remains the strength of this system. ATARS equipped aircraft will carry all sensor capabilities simultaneously. This multi-sensor capability will be completely selectable by the aircrew in flight. Another significant capability of ATARS is its ability to digitally transmit collected data in near real time to ground receiving stations. This information can be provided to various information/intelligence systems for national exploitation via the Joint Service Imagery Processing System-Tactical Exploitation Group (JSIPS-TEG). Consequently, ATARS, with its significant capability, is poised to become a major contributor in the national imagery arsenal.

Unmanned Aerial Vehicles (UAVs) will grow in importance as the capability of these futuristic machines is developed. The Pioneer System will remain the Marine Corps' backbone UAV until a replacement is fielded. The program to replace the Pioneer UAV is the Vertical Takeoff and Landing (VTOL) UAV abbreviated as the (VTUAV) program. The Naval Services have selected Northrop Grumman's "Fire Scout" system as the future VTUAV. The "Fire Scout" provides significant improvements over the current Pioneer capability. The "Fire Scout" will initially be equipped with an



Electro/Optical/Infrared/Laser Designator payload capable of detecting targets up to 6 kilometers away. The Tactical Control Station (TCS) remains central to developmental efforts. TCS will give the Corps a Ground Control Station (GCS) with tremendous growth potential as well as connectivity with the whole family of UAVs from tactical to the High Altitude Endurance UAVs. Additionally, TCS will provide the UAV GCS interoperability with a variety of intelligence nodes. The Marine Corps Warfighting Laboratory has focused their UAV efforts on developing the “Dragon Eye” UAV. The “Dragon Eye” is a small packable UAV designed for small unit reconnaissance. This experiment was initiated to support the Secretary of the Navy’s desire to develop, test, and, if successful, readily provide the equipment to the operating forces.

The Marine Air Command and Control System (MACCS) modernization effort to improve air command and control capabilities involves the fielding of seven developmental systems in the FY04 to FY06 timeframe. This “MACCS Convergence” of new systems will provide the ACE commander with the necessary hardware, software, equipment, and facilities to effectively command and control the Joint Strike Fighter, MV-22 Osprey, and modernized Cobra attack and Huey utility helicopters. The key themes of the “MACCS Convergence” include: (1) expeditionary packaging, (2) modern information technology, (3) Joint interoperability, and (4) exclusive operation by Marines. The following systems will enhance Marine aviation’s contribution to Expeditionary Maneuver Warfare:

○ **Common Aviation Command and Control System (CAC2S)**

will provide a suite of common equipment utilized in air, land, and sea-based configurations. It will enable the migration of aviation command and control agency functions away from single-function, “stove piped” operations toward multi-functional nodes that may be task organized for a variety of mission requirements. CAC2S will provide battlespace situational awareness incorporating intuitive displays, information management, imbedded training and simulation, self-test and diagnostic capabilities and command dissemination to the MAGTF C4I Command Information Architecture for real-time combat direction of aviation missions. The information provided by CAC2S will be interoperable with MAGTF C4I, Naval, and Joint command information systems.

- **Multi-Role Radar System (MRRS)** is a highly mobile, HMMWV mounted, multi-role, modular, medium-range air surveillance radar designed to provide an early entry air surveillance capability ashore.

- **Complimentary Low Altitude Weapons System (CLAWS)** will take advantage of the Advanced Medium-Range Air-to-Air Missile (AMRAAM) capability mounted on a HMMWV. CLAWS will provide the MAGTF with a rapidly and easily deployed, highly mobile, maneuverable, high firepower, air defense asset.
- **Air Surveillance and Precision Approach Radar Control System (ASPARCS)** is the next generation highly mobile, HMMWV mounted, expeditionary air traffic control equipment.
- **The AN/TPS-59 Radar** provides long-range, three-dimensional, land-based air surveillance for the MAGTF optimized for Theater Ballistic Missile (TBM) and conventional air breathing target detection and tracking. The AN/TPS-59 Radar will undergo a Service Life Extension Program (SLEP) to improve expeditionary relevance and to enhance operational readiness.
- **Cooperative Engagement Capability (CEC)** brings a revolutionary new capability to aviation C2 by distributing sensor and weapons data from existing systems.
- **Vertical Takeoff Unmanned Aerial Vehicle (VTUAV)** will be the next generation UAV to support expeditionary maneuver warfare.

MAGTF aviation, through the convergence of the modernized MACCS capability, will be better positioned to provide relevant command and coordination of aviation resources for the MAGTF commander and to foster greater interdependence and closer integration among MAGTF elements. The MACCS must be able to operate wherever and whenever required to support aviation operations.

Marine Corps Position

The Marine Corps continues to pursue new and innovative weapon systems improvements and modernization efforts such as the AV-8B remanufacture, F/A-18A upgrade, EA-6B Upgrades, CH-53E Upgrade, CH-46E ERIP, AH-1/UH-1 Upgrade, ATARS, Fire Scout VTUAV, Pioneer UAV, and Aviation Command and Control Modernization to maintain its combat superiority and tactical relevance in the changing world.

MV-22 Osprey

Discussion

Today the Marine Corps stands on the threshold of a revolutionary capability employing 21st century technology. Recognizing the tremendous operational advantages of tilt-rotor technology, the Corps has championed the development of this innovative aircraft. The impact of this capability will be as far-reaching as was the Marine Corps' introduction of helicopters on the battlefield of the Korean War. In December 1994, the Secretary of Defense announced the decision to replace the CH-46E Sea Knight helicopter with the MV-22 Osprey. The new tilt-rotor aircraft has greater speed, range, and payload. It will carry 24 combat-loaded Marines, enabling the MAGTF to exploit its combat power and effectively execute EMW well into the 21st century. Strategically mobile, the Osprey is capable of global self-deployment with its aerial refueling ability. The combination of range, speed, and payload of the MV-22 nearly triples the depth of a MAGTF's present day area of influence. This significantly complicates an enemy's defensive requirements and inhibits the enemy's opportunity to concentrate forces. The superior combat radius of this aircraft allows Navy ships to maintain adequate standoff distance from enemy anti-ship missiles, enhanced observation devices, underwater mines, and other developing threats. In today's volatile environment, the expeditionary Marine Corps is the most capable and cost-effective option among deployable conventional forces. The arrival of the MV-22 in the Marine operating forces will provide the flexibility needed to prevail against the increasing uncertainty of future aggressors.

Marine Corps Position

The acquisition of the MV-22 represents a tremendous improvement in the Corps' ability to project power from over-the-horizon to inland objectives. The MV-22 remains the Marine Corps' number one aviation acquisition priority.



Joint Strike Fighter (JSF)

Discussion

The Defense Department established the Joint Strike Fighter (JSF) program to develop a family of aircraft that would replace several legacy aircraft. The JSF will be the next generation strike fighter for the Marine Corps, Air Force, and Navy, and is being considered by several other countries. The JSF will replace the AV-8B and F/A-18A/C/D for the Marine Corps, the F-16C for the Air Force and the F/A-18C for the Navy. The JSF family of aircraft will include a Short Take-Off and Vertical Landing (STOVL) variant, a Conventional Take Off and Landing (CTOL) variant, and an Aircraft Carrier Capable (CV) variant. Commonality between the variants will help reduce both development and life cycle costs, and will result in tremendous savings when compared to developing three separate aircraft. The Marine Corps requires the STOVL variant to be capable of operating from large deck amphibious ships and austere sites, as well as from main operating bases. It will use the JSF for the following missions: air support; air interdiction; armed reconnaissance; anti-air warfare; suppression of enemy air defense; aerial reconnaissance; tactical air controller (airborne); assault support escort; support of Tactical Recovery of Aircraft and Personnel (TRAP); and Strike Coordination and Reconnaissance (SCAR) with inherent Electronic Protection (EP), Electronic Attack (EA), and Electronic Warfare Support (EWS) capabilities. JSF will allow the Marine Corps to decrease its TACAIR inventory, while increasing affordability, lethality, survivability, and supportability.

Marine Corps Position

Acquisition of the STOVL JSF will solve significant problems of legacy aircraft age as well as mitigating attrition factors. The STOVL JSF will provide the Marine Corps with a stealthy, state-of-the-art, high performance, multi-role jet aircraft that can operate within the expeditionary, Joint, or coalition environment. The combination of stealth, basing flexibility, and superior performance will revolutionize air warfare and Marine aviation.



KC-130J

Discussion

The KC-130J will be a key component of Marine Air-Ground Task Force operations in the 21st century. Today, Marine KC-130s make up 45 percent of the DoD rotary-wing capable tanker inventory and support numerous Joint and allied aerial refueling requirements. The demand for aerial refueling will increase with 360 additional aerial refuelable MV-22s entering the Marine Corps inventory. Replacement of the aging KC-130 fleet with KC-130J aircraft is necessary to meet the challenge of these increased demands while ensuring the viability and deployability of Marine Corps TACAIR and Assault Support forces well into the century.

The KC-130J's performance features include increased cruise airspeed, night vision compatible interior/exterior lighting, survivability enhancements, high-speed airdrop capability, enhanced rapid ground refueling capability, digital avionics, and powerful propulsion systems. The enhanced capabilities of the KC-130J eliminates fifteen of the KC-130F/R top readiness degraders, results in lower life cycle costs, and negates the requirement for costly Service Life Extension Programs for the in-service fleet.

Marine Corps Position

The acquisition of the KC-130J represents a tremendous increase in lift and refueling capabilities for the Marine Corps. The KC-130J, when combined with the increased capabilities of the MV-22 and the JSF, will increase the operational reach of the Marine Corps.

Marine Corps Aviation Recapitalization

With the realities of a fiscally constrained budget, one of the Marine Corps' greatest challenges is maintaining a balance between modernizing legacy systems and investing in systems for the future. The Marine Corps has initiated several significant recapitalization programs that will ensure aviation will remain a force multiplier for the MAGTF commander. The Marine Corps has made the KC-130J, MV-22 Osprey, and Joint Strike Fighter (JSF) priorities in this recapitalization effort. Once acquired, these assets will enable Marine aviation to continue to provide the MAGTF with the capability of executing all future operational concepts.

Marine Corps Aviation Precision Weapons

Discussion

The Marine Corps requires aviation weapons to perform close air support, deep air support, armed reconnaissance, air interdiction, and suppression of enemy air defenses in support of the combined arms concept. The Department of the Navy has established the future aviation weapons roadmap for Naval and Marine aviation. This strategy decreases the different types of weapons in the inventory by necking down to multi-purpose weapons that effectively address the multitude of threats in the 21st century. This modernization effort will emphasize precision weapons that produce maximum effect on intended targets while minimizing collateral damage. In addition to the modernization effort, the Marine Corps is striving to maintain a high level of training for aircrews. Newly revised training and readiness manuals have set a realistic requirement for ordnance needed by aircrews to maintain proficiency and training. For Marine aviation to better support the Ground Combat Element, a procurement strategy has been developed that reduces the aviation weapons inventory types from three to one. Under this new procurement strategy, the Reactive Weapon category is the principle focus. These future weapons will be capable of employment on tactical aircraft and attack helicopters. The aircraft that will employ this weapon include the F/A-18A/C/D Hornet, Joint Strike Fighter, AV-8B Harrier, and the AH-1W/Z Super Cobra. The “road map” to these future precision weapons includes the Joint Direct Attack Munitions (JDAM) family (and follow-on improvements to JDAM variants) the Joint Direct Standoff Weapon (JSOW) family and the modernized Hellfire. The JDAM family of munitions is composed of a kit that attaches to a general-purpose bomb body (500/1,000/2,000 pound variant plus a 2,000 pound penetrator) to make it more precise. The kit gives the bomb a GPS/INS guidance capability and provides for day or night, all weather precision delivery. The JDAM family will replace laser-guided bombs and complement general-purpose bombs. Presently, only the 2,000-pound variant is fielded.

Marine Corps Position

The Marine Corps is pursuing innovative aviation weapons that will provide optimum support for Marine ground forces. These weapons will allow the Marine Corps to maintain combat superiority and tactical relevance well into the 21st century while providing the capability to conduct realistic and relevant training for enhanced aircrew readiness.

Logistics Vision and Strategy

Discussion

The Marine Corps' logistics vision is embodied by the "Precision Logistics" methodology to dramatically enhance the MAGTF's Joint and expeditionary warfighting capabilities through the evolution of logistics. Emerging warfighting concepts such as Expeditionary Maneuver Warfare 21 will either be defined by our logistics capabilities or by its limitations. To this end, the logistics community is committed to exploring ways to reshape our MAGTFs by increasing their combat power, operational versatility, utility, and deployability.

At the forefront of this evolution, the Combat Service Support Element (CSSE) Advocate and advocacy process define the priorities and direction the Marine Corps ground logistics. The Marine Corps Logistics Campaign Plan articulates the Advocate's basic strategy for evolving the logistics process, procedures, and resources to meet the future warfighting requirements. This strategy encompasses three pillars: ground equipment readiness; distribution; and logistics command and control. These pillars are interrelated and make up the predominance of efforts and resources with the underlying goal to increase the CSS operational capabilities and reduce the logistics footprint.

Although there are numerous efforts underway to evolve Marine Corps logistics, the CSSE Advocate and CSS/Supporting Establishment Advocacy board prioritized the various initiatives. The Integrated Logistics Capability is redefining and realigning our supply and maintenance process. This redefinition will provide direct combat units with greater flexibility to execute their primary mission and to operate in future warfighting scenarios. The implementation of the Global Combat Support System-Marine Corps (GCSS-MC) will integrate logistics information systems into a common environment. Autonomic Logistics, which is an emerging capability, will provide commanders and their staffs with greater situational awareness of mission critical equipment and the ability to rapidly and effectively respond to logistical requirements on the battlefield.

Marine Corps Position

The evolution of Marine Corps logistics is critical for enabling MAGTFs to effectively operate in future warfighting environments. The desired end state includes increased MAGTF operational and CSS capabilities with a reduced logistical footprint.

Marine Corps Infrastructure

Discussion

The Marine Corps infrastructure consists of 17 major bases and stations in the United States and Japan. In keeping with the Corps' expeditionary nature, these installations are strategically located near air and seaports of embarkation, and are serviced by major truck routes and railheads, to allow for the rapid and efficient movement of Marines and materiel.

Infrastructure directly affects operational readiness. Infrastructure development planning is designed to provide facilities for the efficient training of air/ground combat teams while minimizing excess or redundant capacities. The obvious advantages to a lean infrastructure are efficiency and cost-effectiveness. Challenges arise in providing and maintaining infrastructure that can meet changing mission requirements in the face of increasing external pressures and declining fiscal and manpower resources. These challenges include:

Encroachment Control. Although originally remotely situated, urban, industrial, and residential areas now surround many Marine installations. The growth of these civil areas has often been accompanied by pressure for access to Marine resources or demands to curtail Marine operations to make them more compatible with surrounding land uses. This civil growth has also taken away habitat for animal and plant species, leaving Marine Corps installations and training areas as some of the last remaining habitat for these species. Paradoxically, the Marine Corps has found itself, by virtue of its proactive protection of our natural resources, faced with encroachment of these very training ranges and installations. The Corps maintains an aggressive encroachment control program that has resulted in win-win solutions to meet these demands while not degrading the mission effectiveness of Marine installations. Encroachment takes many forms and requires constant vigilance to ensure the continued viability of Marine installations and access to the Corps' training ranges.

Environmental Compliance. Our Nation has crafted a strong environmental code of conduct structured on a wide range of federal, state, and local laws and strengthened through increased regulatory agency scrutiny and enforcement. Due to the nature of the Marine Corps mission, these requirements present significant challenges. Through inspired leadership, hard work, Marine tenacity, and acceptance of environmental requirements as a way of doing business, the Corps has made significant strides toward achieving its ultimate goal of strict compliance with all

applicable environmental requirements while performing its mission. Today, Marines at all levels contribute to environmental goals by simply performing their jobs and being aware of potential environmental impacts. Pollution prevention and natural resource management strategies are being pursued to achieve goals. In this era of declining resources, the next challenge is to continue the environmental progress and protect the ability to train and operate while reducing overall costs.

Infrastructure Rightsizing. The Marine Corps' U.S. readiness infrastructure investment is more than \$20 billion. Routine maintenance and repair protect this investment through its life cycle, but eventually facilities must be recapitalized. Recapitalization of an infrastructure investment of this magnitude once every 100 years would necessitate a Military Construction, Navy (MCON) funding stream of \$200 million annually. This is not achievable within current or projected budgets. To offset this deficit, the Corps is aggressively pursuing several initiatives to downsize facilities at our bases and stations. The Corps must optimize its infrastructure usage by matching requirements to assets, no more-no less. Computerized master planning is a viable resource in this regard. The Corps is ensuring maximum use of our best infrastructure and reducing its inventory by demolishing its least energy efficient and most maintenance intensive facilities. In addition, it is examining the ways it does business to reduce the need for facilities to support the operating forces; such as, prime vendor delivery of goods instead of maintaining a warehouse of material. The Corps is looking to other services, agencies, and the commercial sector to provide needed facilities. Finally, Marines are taking advantage of recent legislation which provides greater access to public/private ventures, to reduce our requirement for funding for replacement of facilities.

Base Operating Support (BOS). Military readiness requires an efficient and well-managed infrastructure with quality facilities and high quality of life features. In addition to capital improvements, the Marine Corps must invest in their long-term operation, maintenance, and repair facilities. Failing to provide adequate resources will result in an eventual degradation of quality of life, operations, and mission accomplishment. Limited funding for BOS must be balanced to keep the backlog of maintenance and repair from growing, comply with environmental requirements, pursue aggressive energy savings programs, and pay for required services. These are the costs associated with responsible ownership. The Marine Corps is working to meet these challenges through a variety of means, including technological and business process changes to increase productivity. They are also exploring new ways to outsource and finance facility requirements. BOS programs require continued visibility and support throughout the budget process.

Civilian Manpower. Installation management requires a diverse staff possessing skills ranging from the electrical and plumbing trades to professionals trained in environmental science and law. The Marine Corps has actively pursued more efficient business practices, including competing various functions and using low maintenance technologies. Care must be exercised, however, to ensure that reducing civilian personnel does not impact the Corps' ability to provide a sufficiently skilled work force to adequately maintain our infrastructure. Support at all levels is required as this invaluable resource is analyzed.

- **Base Realignment and Closure (BRAC).** The limited size and lack of redundancy within the Supporting Establishment presents certain advantages and disadvantages. The efficiencies associated with a small physical plant strategically located in support of air-ground teams are truly beneficial. During this period of force and base structure reductions, however, finding the means to further reduce infrastructure capacity while providing adequate facilities to meet the needs and maintain the integrity of our MAGTF organizations is difficult. Decisions made during 1995 as part of the last round of base realignments and closures provided the infrastructure blueprint for the Marine Corps into the next century. Implementing these decisions required significant up front costs to achieve long-term economies. New technologies, changes in doctrine and training, a greater focus on Jointness, and the fielding of new equipment necessitate continual assessment of capacity requirements and resultant planning for change. Effecting these changes will require continued commitment at all levels within the DoD and the Congress.
- **Quality of Life.** The Marine Corps is a people-centric service. A Supporting Establishment that helps attract and retain outstanding Marines and Sailors requires a commitment to their quality of life by providing housing, recreational amenities, child care facilities, family services, community support centers, and more. The Corps has significant shortages of adequate housing for both bachelor and married service members. To satisfy the bachelor housing shortages, it will continue using substantial portions of its Military Construction funding to replace all inadequate squad bay and gang head barracks by 2005. The Corps will then continue that commitment by using Military Construction funding to build barracks in order to continue housing Marines at the two per room assignment standard. The

Corps is also dedicating Maintenance of Real Property funding to eliminate the backlog of facility repairs to barracks by 2004. Furnishings are also being replaced on a whole-room basis and at a faster replacement cycle. For family housing, the schedule is to replace or repair our core family housing inventory by the OSD goal of 2010. This and minor deficit reductions are being pursued using both traditional Military Construction and Public-Private Venture initiatives. In addition to housing, a commitment to excellent Marine Corps Community Service programs and workplace quality improvements will be instrumental in recruiting and retaining our Marines. We will maintain this commitment to quality of life infrastructure improvements through the collective leadership skills and managerial abilities resident in the operating forces and the Supporting Establishment. This commitment to our people will result in improved readiness and ensure an excellent Supporting Establishment for future generations of Marines.

Marine Corps Position

The Marine Corps has a goal and a long-range vision to provide an infrastructure that meets the operational needs of Marine warfighters. The goal is to improve our training capabilities while providing the necessary quality of life and environmental stewardship of the Corps' resources. Through this vision, the Marine Corps' supporting establishment is enhancing its position as the Fifth Element of the Marine Air Ground Task Force



Marine Corps Warfighting Laboratory

Discussion

The Marine Corps Warfighting Laboratory (MCWL) was established in October 1995 at the direction of the Commandant of the Marine Corps. It is responsible for developing tactics, techniques, and procedures (TTPs) and evaluating technologies that may create or refine advanced warfighting capabilities. These technologies and TTPs are field tested in concept-based experiments held in conjunction with operating forces on both coasts. Technologies and TTPs that demonstrate potential are passed on to the Combat Development Process.



In early 1996, MCWL formulated an initial Five Year Experimentation Plan (FYEP). To date, all phases of the FYEP have been completed. The first phase, Hunter Warrior, examined small unit enhancements for the dispersed, extended battlespace. The second phase, including Urban Warrior in March 1999, examined operations in cities and urban environments.

Capable Warrior, the last phase of the FYEP, built on lessons learned in the earlier projects. The purpose was to develop or find technologies and TTPs that could support Operational Maneuver From the Sea (OMFTS). Four major experimental areas were explored in this effort. These areas included over-the-horizon (OTH) communications, command and control; seabased logistics and mine countermeasures (MCM).

As part of Capable Warrior, MCWL participated in one of the largest Joint experiments ever, Millennium Challenge '00. MCWL's portion was Millennium Dragon, conducted in Southern Mississippi, during September. Millennium Dragon continued the refinement of tactics, techniques, procedures, and supporting technologies required to meet the challenges of OMFTS and STOM. Joint efforts included over-the-horizon communication links with the Navy and simulated the use of mine countermeasures to safely bring an amphibious landing force ashore.

MCWL also initiated a small-unit level Military Operations in Urban Terrain (MOUT) series of experiments, Project Metropolis, focused on TTPs in the urban environment. Project Metropolis evolved from the urban combat events completed during Urban Warrior and additional experiments

conducted in southern California. Project Metropolis met its goal of developing a MOUT Program of Instruction for transition to the Combat Development System at Quantico. MCWL will continue to focus on improving the TTPs throughout 2001.

During 2000, MCWL formed the Center of Emerging Threats and Opportunities to identify emerging non-traditional threats, explore concepts, and determine the capabilities and solutions to meet these future challenges. Initial efforts will focus on MEUs, Civil Affairs/PSYOP Training Packages, Negotiation Skills, Interagency Training, and non-governmental organization liaison and contingency support.

Capable Warrior will conclude with an advanced warfighting experiment as part of the Navy's Kernel Blitz experiment. Capable Warrior AWE will culminate 24 months of experimentation with the OMFTS/STOM concepts for expeditionary operations in the littorals.

The next series of experiments will begin in the summer of 2001, leading towards Millennium Warrior '03. MCWL will focus on five core competencies: Reconnaissance, Surveillance, and Target Acquisition (RSTA); MOUT; Information Technology and Command and Control (IT&C2); Asymmetric Threats; and Wargaming.

Marine Corps Position

The Marine Corps Warfighting Laboratory conducts concept-based experimentation for the identification, development, and integration of operational concepts in concert with the tactics, techniques, procedures, and technologies used to improve naval expeditionary capabilities across the spectrum of conflict.



Chemical/Biological Incident Response Force

Discussion

The 1995 Sarin gas attack on the Tokyo subway, Iraq's suspected possession of biological weapons, and the breakdown of controls on weapons of mass destruction in the former Soviet Union reveal that the threat of biological or chemical terrorism has significantly increased. Because of the catastrophic potential posed by chemical or biological agents, the DoD has focused on preventing such an incident. It must, nonetheless, be able to respond to and manage the consequences of such an attack.

In recognition of this requirement the Marine Corps activated the Chemical/Biological Incident Response Force (CBIRF) in 1996. CBIRF is manned, trained, and equipped to respond to chemical or biological terrorist incidents. As a national asset, the CBIRF was used to support the 1996 Centennial Olympic Games in Atlanta; the 1997 and 2001 Presidential Inaugurations; the Summit of Eight in Denver, Colorado; as well as the January 1998 State of the Union Address, and April 1999's 50th Anniversary Summit for NATO, in Washington, D.C. CBIRF was recently moved to Indian Head, Maryland to improve CBIRF's responsiveness to the National Capital Region and better position the force for worldwide deployment

CBIRF is capable of rapid response to chemical or biological incidents. When such an incident occurs, CBIRF immediately deploys to the affected site to provide a number of significant initial consequence management capabilities. These include: coordinating initial relief efforts; security and isolation at the affected site (when authorized); detection, identification, and limited decontamination of personnel and equipment; expert medical advice and assistance; and service support assistance. Throughout its response, civilian and government consultants advise CBIRF in areas related to chemical or biological incidents. When not training, exercising, or responding to an incident, CBIRF personnel provide training to other organizations. CBIRF also continues to develop countermeasures, force protection training, and equipment support packages for deploying MEU(SOC)s. CBIRF will assist in the development of new doctrine, equipment, techniques, and procedures for responding to a chemical or biological attack or incident. Additionally, CBIRF assists federal, state, and local response forces develop chemical and biological incident training programs. CBIRF offers a model for developing similar capabilities elsewhere within DoD.

Marine Corps Position

DoD has a limited ability to respond effectively to chemical and biological incidents. The Marine Corps contributes to the national response capability by manning and equipping a consequence management force package specifically designed to respond to terrorist initiated chemical or biological incidents. CBIRF continues to develop the concepts, doctrine, organization, tactics, techniques, and procedures necessary to remain the Nation's premier incident response force. Additionally, CBIRF remains focused on increasing its capabilities in two areas: development of countermeasure and force protection training and equipment support packages for deploying MEU(SOC), and assistance to federal, state, and local response forces in development of internal training programs.



Joint Non-Lethal Weapons Issues

Discussion

In recent years, U.S. forces have increasingly conducted military operations other than war. This category of operations includes such missions as humanitarian assistance, military support to civil authorities, peace operations, and noncombatant evacuations. Increased interaction between friendly troops and friendly, neutral, or hostile civilian populations has become an inevitable feature of the contemporary landscape. The tactical application of non-lethal weapons (NLWs) is often useful in such scenarios.

Non-lethal weapons are explicitly designed and primarily employed to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and collateral damage to property and the environment. A recent Joint Mission Area Analysis (JMAA) concluded the potential military effectiveness of NLWs warrants aggressive development and investment to capitalize on full spectrum non-lethal capabilities. It highlighted potential operational and strategic applications of non-lethal weapons, beyond the tactical level, to include addressing the use of human shields and achieving desired effects with precision accuracy on targets in restricted fire areas, or within a constrained rules of engagement environment.

NLWs reinforce deterrence efforts and expand the range of options available to commanders. They enhance our capability to discourage, delay, or prevent hostile action; to limit escalation; to isolate the battlespace. They also allow military action in situations where use of lethal force is not the preferred option. The DoD is now in the process of fielding NLW capability sets. NLWs were employed during the withdrawal of United Nations forces from Somalia and during the intervention in Haiti. They are currently deployed and have been employed in the former Yugoslavia. Fielded systems include non-penetrating projectiles (rubber bullets and bean-bag rounds), flash-bang grenades, pepper spray, aqueous foam barriers, and caltrops.

In 1996, the Under Secretary of Defense for Acquisition and Technology appointed the Marine Corps DoD Executive Agent for NLWs. Leadership in this area transitioned from the Office of the Secretary of Defense (OSD) to the Joint NLW Directorate (JNLWD) in 1997. During 1999, the JNLWD updated a Memorandum of Agreement among all Services and the U.S. Special Operations Command, which establishes procedures for effective management and coordination of non-lethal efforts. A Joint Non-Lethal Weapons Master Plan was issued in 2000 outlining the vision, goals, and objectives of the program.

Nuclear, Biological, and Chemical (NBC) Warfighting Modernization

Discussion

Threats emerging from the proliferation of NBC weapons have become one of today's foremost security challenges. Imbalances in conventional warfare capabilities have driven potential adversaries to find alternative means in the pursuit of a balance of power. The proliferation of Weapons of Mass Destruction (WMD) has created a complex, uncertain and volatile NBC environment. Marines must remain trained and equipped to protect the nation's security interests. The NBC threat has led the Marine Corps to aggressively develop and field NBC Defense capabilities and prepare to conduct other missions, such as, Consequence Management. These development efforts include editing NBC Defense Concepts and Doctrine, fielding state-of-the-art technologies and equipment, and upgrading NBC Defense Training Plans to support EMW. NBC Defense Capabilities are focused on three pillars: Protection, Contamination Avoidance, and Decontamination.

- The WMD Consequence Management Team is responsible for acquisition of equipment in support of Consequence Management Mission Areas, which include Reconnaissance; Decontamination; Force Protection; Medical; and Command, Coordination, Communication, Computers, Intelligence, and Interoperability (C4I2). This is accomplished through the evaluation and acceptance of proven commercial and non-development technologies, cooperation with DoD technology development assets, and operational testing and fielding. To date, the WMD Consequence Management Team has successfully fielded over sixty items of equipment to support the Marine Corps WMD Consequence Management capability. During fielding, the WMD Consequence Management Team provided training sustainment and the implementation of comprehensive logistical support to the Chemical/Biological Incident Response Force (CBIRF) Consequence Management capability and MEU(SOC) Enhanced NBC (E-NBC) Capability Sets.
- Individual and Collective protection provide the warfighter life sustaining capabilities and the ability to continue operational activities in the event that units are forced to occupy or traverse

NBC contaminated environments. Individual protection includes protective masks, hoods, suits, boots, and gloves exclusively designed for ground combat and air combat units. Collective protection consists of two general categories: stand-alone shelters and integrated systems that provide a contamination-free, environmentally controlled surrounding. Collective protection examples include mobile and fixed command posts, medical facilities, rest and relief shelters, buildings/fixed sites, vehicles, aircraft, and ships. The Marine Corps is pursuing and fielding technologies that provide improved protection, better mobility in Mission Oriented Protective Postures (MOPP), vision and voice capabilities, and reduced heat stress from current Individual Protective Equipment (IPE). Evaluation of technologies for collective protection in contaminated areas to improve filtering, ventilation, reduced weight, volume, costs, and other resource demands are being conducted.

- Contamination Avoidance includes NBC reconnaissance, detection, identification, warning, and reporting. Early and reliable detection and warning is fundamental to avoiding chemical and biological agent contamination. Early detection and warning provide the MAGTF Commander with situational awareness of NBC conditions throughout the battlespace. The ultimate goal is to provide the commander with a real-time picture of the invisible hazards associated with NBC Defense. Contamination Avoidance takes advantage of Information Age technology in developing our doctrine. Contamination Avoidance integrates detector (point and standoff), identification of the agent(s), sample collection and storage, (vapor, liquid, and solid) intelligence (collection and transmission), operations, weather, and unit location networks to provide all units and elements with the requisite information to “paint” the NBC situation. The Marine Corps is aggressively pursuing technology advances in chemical and biological standoff detection, remote and early warning detection, sensor miniaturization, and improved detection sensitivity.
- Decontamination systems provide the force a regeneration, restoration, and resumption of operations capability in the event that contamination cannot be avoided. Personnel and equipment must be decontaminated in order to reduce and/or eliminate hazards after chemical and biological agent employment and

contact. Modular decontamination systems with engineering improvements have been fielded and future systems are being developed to include more effective personnel decontamination and fixed site, large equipment, and sensitive equipment decontamination. The Marine Corps is evaluating the physical removal of contamination on personnel, equipment, fixed sites, and sensitive equipment, permitting forces to resume operations. Additional considerations include reducing resource demands, developing effective concepts and doctrine, and efficient organization.

Marine Corps Position

The Marine Corps Combat and Materiel Developers are leveraging the NBC Defense Program Development effort and commercial and emerging technologies to field NBC Defense capabilities to support the Marine Corps. Effective operational concepts and doctrine, validated by realistic training, remain fundamental to defending against NBC threats.



Technology, Assessment and Development

Discussion

The Marine Corps' Science and Technology (S&T) Program is designed to focus efforts and resources in support of the Marine Corps' goal to capitalize on innovation, experimentation, and technology to prepare Marine Forces to succeed in the 21st century. In order to accomplish this goal the Marine Corps established the Science and Technology Working Group which unifies the efforts of the Marine Corps' S&T Community.

A key responsibility of the S&T Working Group is to support the Marine Corps' Concept Based Requirements Process (CBRP). This is accomplished by ensuring that S&T requirements are incorporated into a Marine Corps S&T investment strategy and that S&T solutions are transitioned to acquisition. The S&T Working Group provides a forum where the S&T community develops an integrated science and technology plan that ensures cohesive efforts from solution development to acquisition. The S&T Working Group also brings together the operational users and the S&T community to develop capabilities useful to the warfighters. The S&T Working Group provides a process to identify requirements, develop solutions, and transition those solutions to acquisition.

The S&T Working Group is co-chaired by the MCWL Office of Science, Technology, and Integration (OSTI) and the Office of Naval Research (ONR) Code 353 with members from MCCDC, MCSC, HQMC Advocates, DON, Science Advisors, and research laboratories. The S&T Working Group employs four processes: develop prioritized USMC S&T Requirements; recommend a USMC S&T Investment Plan; review current USMC S&T Initiatives; and transition S&T Solutions to acquisition or other DOTES actions.

Marine Corps Position

The S&T Working Group provides a forum that identifies technological solutions and focuses investment required to transition requirements to acquisition. This integrated approach allows the Corps to apply scarce resources in developing the technology that will provide the operating forces the capabilities needed to win in tomorrow's battlespace.

Intelligence, Surveillance, and Reconnaissance

Discussion

Intelligence has always been the driving force of Marine Corps operations and planning, and the foundation upon which current and future operational capabilities are built. Surveillance and Reconnaissance are the means of collecting and reporting information from which intelligence is derived. Intelligence, Surveillance, and Reconnaissance (ISR) will be critical to the successful execution of EMW and support to the Marine Corps.

From an intelligence perspective, (EMW) relies on the MAGTF commander's ability, prior to arrival in the operating area, to gain timely, accurate, and relevant information on the enemy and operating environment in order to exploit the enemy's weaknesses and avoid the enemy's strengths. MAGTF ISR must provide both three-dimensional, situational awareness to units spread throughout the theater, and the means to disseminate intelligence requirements in an expeditious and interactive fashion. Overall, EMW presents formidable challenges to organic collection, processing, and dissemination capabilities, as well as to the MAGTF's ability to leverage support from both theater and national level assets.

To meet these challenges, ISR will leverage emerging technologies and employ a combination of robust organic tactical assets and connectivity to theater and national capabilities. In order to fulfill many of its tactical intelligence requirements, the MAGTF will require organic ISR sensors that can be launched and controlled from ship. Furthermore, intelligence must support planning and operations both afloat and ashore. ISR support to the Marine Corps of the 21st century will place greater demands for new collection capabilities that are sustained, non-intrusive, and capable of complementing and operating with efforts already in place. Urban operations, for example, will require access to, multifunctional aerial collection of imagery through organic manned and unmanned platforms with multiple modular payloads capable of providing continuous day/night, all weather coverage throughout the area of responsibility. Marine Corps Signal Intelligence (SIGINT) and Counter-Intelligence/Human Source Intelligence (CI/HUMINT) will require similar innovation. While technology is an important part in developing a 21st century ISR capability, the ongoing, multi-year program to revitalize Marine Corps intelligence personnel and training will play as critical a role.

Development and maintenance of a friendly/enemy common picture of the battlespace is critical. In order to exploit the complex and dynamic operational environment of tomorrow, commanders must maintain continuous situational awareness. As the intelligence segment of MAGTF C4I, the Intelligence Analysis System (IAS) will provide the intelligence portion of the MAGTF commander's common picture of the battlespace with connectivity to higher and adjacent headquarters.

Marine Corps Position

In recognition of the increasingly crucial role intelligence plays on the modern battlefield, the leadership of the Marine Corps is committed to providing the resources necessary to ensure Marine Corps intelligence is organized, trained, and equipped to meet the challenges of today and tomorrow.



Marine Corps Security Forces

Discussion

During 1998, the Commandant of the Marine Corps and the Chief of Naval Operations agreed to reorganize Marine Corps Security Forces to dramatically enhance naval anti-terrorism/force protection globally and bolster the Department of the Navy's reputation as anti-terrorism/force protection experts. The Marine Detachments (MARDETs) afloat, previously serving aboard aircraft carriers, were disestablished in order to form a second Fleet Anti-Terrorism Security Team (FAST) Company within the Marine Corps Security Force Battalion. The establishment of the Second FAST Company provided an additional five platoons, bringing the total number of FAST platoons to eleven. In late 2000, Marine Barracks, Guantanamo Bay, Cuba was redesignated as MCSF Company and its platoons were assigned security responsibilities. Additionally, to compensate for increased mission requirements, one FAST Platoon was added to each FAST Company, bringing the total number of FAST Platoons to thirteen.



Recognizing the capability that FAST provides to naval forces and installations overseas, the Marine Corps recommended the establishment of the FAST Deployment Program (FDP). The FDP provides select Fleet Commanders-in-Chief (CINCs) and/or Fleet Commanders forward deployed FAST platoons on six month unit deployments. There are three deployed

FAST platoons participating in the FDP year round. One each is assigned to COMUSNAVCENT, CINCUSNAVEUR, and CINCPACFLT. The utility of the FDP was recently highlighted when two of the three platoons were called upon to provide security in the aftermath of the East African embassy bombings. The platoon from NAVCENT deployed to Nairobi, Kenya and the platoon from NAVEUR deployed to Dar es Salaam, Tanzania. Their utility was further highlighted during 1999 when the platoon from Naples, Italy deployed to the American Embassy in Skopje, Macedonia, in the face of hostile, local nationals and a deteriorating Balkan security situation. Most recently, FAST anti-terrorism/force protection skills were put to the test in the aftermath of the USS Cole bombing in Yemen. The NAVCENT FAST platoon quickly responded to security requirements in support of rescue, recovery, and repair operations.

Marine Corps Position

Highly skilled and responsive security forces are the best solution to today's volatile asymmetric security environment. Rapidly deployable and well-equipped FAST platoons, such as those of the FAST Deployment Program, can be deployed in advance, or in response to, a crisis. They provide a significant enhancement to the force protection capabilities of the Fleet CINCs. The Marine Corps remains committed to supporting Naval Security as we face the security challenges of the future.







Chapter 3

Current Operations

Today the Marine Corps is engaged world wide, answering the Nation's call, with well-trained, task-organized forces. Participating in myriad operations, from humanitarian relief and peace operations to forward presence and crisis response, forward deployed Marine Expeditionary Units (MEUs), Maritime Prepositioning Forces (MPFs), and sea-based MEUs can operate without access to land bases, providing a high degree of flexibility as to when, where, and what force should be employed.

Because of this expeditionary character, Marine forces stand ready to deploy quickly, effectively, and with sufficient agility and ability to deal with wide-ranging and multiple situations. This tremendous political and military capability is not offered by other United States military services. These current capabilities are honed by an extensive program of exercises at the unit, force, Joint and "Combined" levels that keep our warriors in top combat shape and ready for any tasking.

Current Operations

While 2000 did not see dramatic operations on the scale of 1999's Kosovo campaign, rotational naval forces were constantly "on station, on call" worldwide throughout the year, supporting ongoing Joint operations and theater engagement efforts. The attack on the USS Cole highlighted the importance, as well as the cost, of maintaining a strong American presence in key, but unstable, regions.

Again this year, five MEUs, manned by more than 11,000 Marines, embarked on Amphibious Ready Groups (ARGs), deployed during the year. Similarly, 30,500 Marines were deployed or based forward in support of other operations.

Marines from the 15th and 22nd MEUs, embarked on the USS Bon Homme Richard and Wasp ARGs respectively, participated in training and exercises with friends and allies throughout Southwest Asia. Elements from Navy and Marine aircraft wings conducted strike and support operations as part of Operations Northern Watch and Southern Watch over Iraq.

Forward-deployed naval forces, based in Japan, continued to provide visible overseas engagement and projected U.S. influence in East Asia. Seventh Fleet Marines and Sailors exercised and operated with the forces of several nations in Southeast Asia. USS Peleliu, with elements of the 11th MEU, provided heavy-lift logistics support to the International Force in East Timor (INTERFET). The Navy and Marine Corps team executed some 30 varied missions in support of INTERFET and humanitarian assistance efforts. Operating forces from Marine Forces, Pacific (MARFORPAC) supported the U.S. Liaison staff to the United Nations Transition Assistance program in East Timor, transporting thousands of tons of humanitarian supplies and building materials.

In other activities, Marines deployed in ARGs assigned to the Sixth Fleet provided presence ashore in Kosovo and served as the Joint Task Force Commander's ready reserve. Marine Fleet Anti-Terrorist Support (FAST) teams deployed to Cuba, Yemen, and Bahrain on short notice to provide enhanced force protection to forward deployed forces during periods of heightened threats.

The Marine Corps Reserve, including Reserve aviation units, contributed significant support to counter drug operations, both from bases in the United States and overseas. Marine Reserves also supported many other efforts, including Operations Northern Watch and Southern Watch, civil affairs and other activities in Bosnia and Kosovo, and the annual large-scale Exercise Bright Star in Egypt.



Exercises

The Marine Corps also reestablished three Marine Expeditionary Brigades (MEB) in 2000. Two of these MEBs participated in major Joint exercises last year.

Marine Corps participation in realistic, worldwide exercises-whether internal specific, Joint, and/or Combined-provides a significant contribution to meeting capability requirements for sustaining a relevant force in readiness.

Internal Marine Corps exercises-such as Combined Arms Exercises (CAX) in Twenty-nine Palms, California; Mountain Warfare Training Center (MWTC) courses in Bridgeport, California; Weapons and Tactics Instructor (WTI) courses in Yuma, Arizona; and, MEU (Special Operations Capable) workups-develop individual and unit proficiency/competency and test operational skills in order to provide those capabilities required to execute the full range of Marine Air-Ground Task Force (MAGTF) Operations.

Through Joint and Combined exercises-such as Ulchi Focus Lens in The Republic of Korea; Red Reef in Saudi Arabia; Cobra Gold in Thailand; Cooperative Osprey in Camp Lejeune, North Carolina; and UNITAS in various South American countries and West African States-the Marine Corps improves its ability to rapidly project forces globally and enhances interoperability.

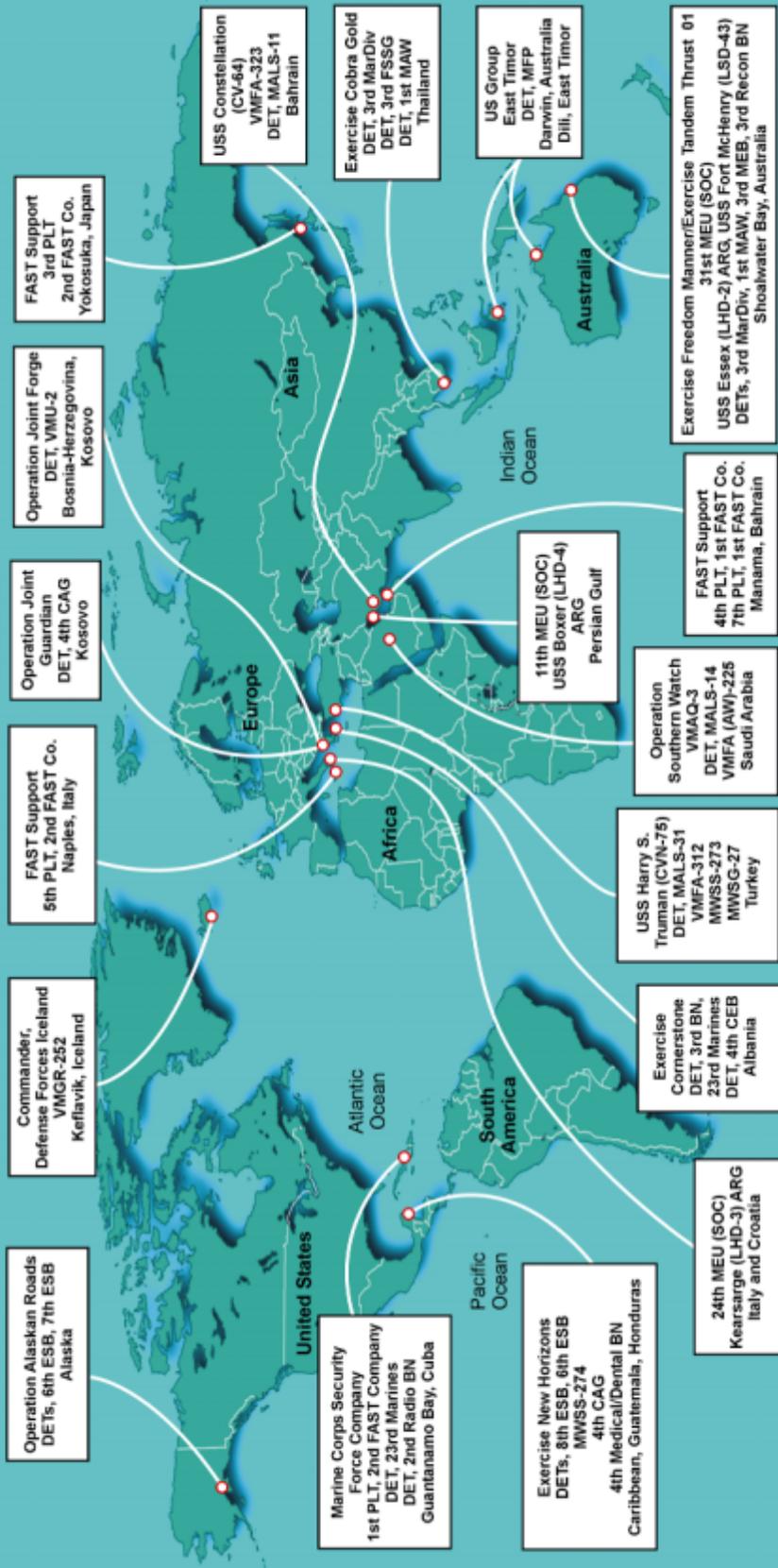
During 2000, Marines participated in over two hundred internal, Joint, and Combined exercises. These exercises were categorized as live fire, field training, command post, and/or computer assisted. Marine participation levels ranged from selected detachments (from small cadres of skilled specialists to trained battle staffs) to a MEB in excess of two thousand troops. These exercises provided invaluable training in diverse locations around the world and ensured that we remained operationally ready and forward deployed.

Counter-drug Operations

The Marine Corps continued to contribute to the Nation's counter-drug effort during 2000, and participated in 50 counter-drug (CD) missions in support of Joint Task Force Six (JTF-6), Joint Interagency Task Force East (JIATF-E), and Joint Interagency Task Force West (JIATF-W). These missions were conducted along the U.S. southwest border, on federal lands, and within several domestic hot spots that have been designated as High Intensity Drug Trafficking Areas (HIDTAs). Individual Marines and units are assigned to these CD missions in order to provide support to domestic Drug Law Enforcement Agencies (DLEA) in their investigation of drug trafficking and apprehension of suspected traffickers throughout the United States. Seventy-five percent of the missions were executed by Marines of Marine Forces Reserve (MARFORRES).



Deployed Marine Forces - June 2001



CY00 USMC Operations Matrix

<i>Date</i>	<i>Location</i>	<i>Mission</i>
Oct 92 — Present	Southeast Asia	POW / MIA Accounting
Jul 96 — Present	Southwest Asia	Force Protection
Jan 98 — Present	South America	Counter-drug Support
Jun 98 — Present	Aviano, IT, Ramstein, GM, Bosnia/Kosovo	Peacekeeping
Sep 99 — Present	East Timor	Peacekeeping
Aug — Oct 00	Western United States	Wildland Fire Support
Apr 00	Puerto Rico	Clearing Operations
Jul — Oct / Dec 00	Incirlik, Turkey	NORTHERN WATCH
Oct — Dec 00	Yemen	DELIBERATE RESPONSE
Oct — Dec 00	Saudi Arabia	SOUTHERN WATCH

Force**Description of Action**

Dets from 1st MAW and 3rd FSSG

FULL ACCOUNTING — Support of national efforts to account for POWs/MIAs from the Vietnam War

Dets from I MEF

DESERT FOCUS — Conducting CI force protection operations in support of CJTF-SWA

Det MACG-28

LASER STRIKE — Counter-drug radar and communication support

Dets; VMU-2, 4th CAG, 2ND LSB

JOINT FORGE — Peace enforcement/keeping operation

Elements of III MEF

Provide planning support and humanitarian assistance in support of international/United Nations peacekeeping force to East Timor

Elements of 1st and 2nd MARDIV

Wildfire suppression in western United States

Elements of 2nd MARDIV

Providing support to F.B.I. operations to clear trespassers from Vieques Range in Puerto Rico

Dets from 3rd and 4th MAW

NORTHERN WATCH — VMGR detachments providing aerial refueling support for CSAR helicopter

13th MEU(SOC) / FAST Platoons

Providing assistance to CJTF DELIBERATE RESPONSE in support of the USS Cole bombing incident

Dets from 3rd MAW and VMAQ-1

Providing aircraft support to Operation SOUTHERN WATCH



Chapter 4

Major Acquisition Programs

This chapter provides background information on key programs that the Marine Corps and the Navy are currently pursuing. These programs aggressively exploit advances in technology which: improve intelligence and information processing; increase speed and mobility; support firepower, and logistical operations of sea-based expeditionary forces; and will significantly minimize potential casualties on the emerging battlefield. Their acquisition will permit effective execution of future stability and power projection operations. This chapter is divided into five sections. The first four sections address those programs integral to the major components of the Marine Air-Ground Task Force (MAGTF). The final section addresses general MAGTF support programs

Part 1 – Command Element Programs

The Command Element (CE) of the Marine Air-Ground Task Force (MAGTF) headquarters is task organized to provide the command, control, communications, computers, intelligence, and interoperability (C4I2) necessary for the effective planning and execution of Marine Corps power projections capabilities.

MAGTF C4I is the overall concept for the migration and integration of tactical data systems, communication systems, and information security systems in the Marine Corps. MAGTF C4I provides commanders with a common tactical picture and the means to manage the increasingly complex modern battlefield. MAGTF C4I provides the ability to send, receive, process, filter, store, and display data to aid in tactical decision making. MAGTF C4I employs the same types of common hardware and software whether ashore or afloat or while in garrison or in the field. The development plan for MAGTF C4I envisions the creation of an integrated migration strategy which requires that software functionality of migrating systems be incorporated into the MAGTF Software Baseline (MSBL). Successive versions of MSBL will provide increased functionality as the threat changes and doctrine and requirements evolve.

By capitalizing on the existing core services of the Unified Build/Defense Information Infrastructure and Common Operating Environment, the Marine Corps intends to reengineer numerous systems across the mission areas of land operations, intelligence/dissemination, airspace management/air operations, fire support, combat service support, and tactical warfare simulation. The ongoing MAGTF C4I migration effort is consistent with, and supportive of, the Assistant Secretary of Defense for C3I mandate to designate DoD standard migration systems. Individual systems will be merged so information can be shared via MAGTF C4I. An additional goal is to reduce the acquisition schedule and cost of initiatives associated with MAGTF C4I.

This section provides basic descriptions of Marine Corps C4I programs/systems under development or scheduled for procurement or fielding during FY00 and FY01. The system descriptions are organized according to the primary command and coordination functional areas they support.



Maneuver

Joint Network Management System (JNMS)

Description

The JNMS provides communication planners and managers with a Joint service, interoperable tool to conduct high level planning (war planning); detailed planning and engineering; monitoring; control and reconfiguration; spectrum planning and management; and, security of systems and networks supporting Joint operations.

Operational Impact

JNMS will provide the Commander In Chief (CINC), Commander Joint Task Force (CJTF) and Service Component headquarters with an interoperable network planning and management system to establish and operate a Joint Task Force (JTF). The Marine Corps will field JNMS to the active Marine Expeditionary Forces (MEFs) supporting CINC and JTF headquarters, Reserve Forces, and Supporting Establishments including the Military Occupational Specialty (MOS) producing schools. The MEFs currently support this mission with an interim and limited JNMS solution.

Program Status

Initial Operational Capability is scheduled for FY03. Development and production (support) award is anticipated in FY01.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
Quantity:	0	0

Developer/Manufacturer

Tactical Data Network (TDN)

Description

The TDN consists of a network of gateways and servers interconnected with one another and their subscribers via a combination of common user long-haul transmission systems, local area networks, and switched telephone systems. This network provides its subscribers with basic data transfer and switching services; access to strategic, supporting establishment, Joint, and other service component tactical data networks; network management capabilities; and, value-added services such as message handling, directory services, file sharing, and terminal emulation support.

The TDN Gateway will be deployed at Marine Expeditionary Force (MEF) and Major Subordinate Command (MSC) levels and will provide access to the Nonsecure Internet Protocol Router Network (NIPRNET), Secret Internet Protocol Router Network (SIPRNET), and other service tactical packet switched networks. It will be in a Heavy Variant High Mobility Multipurpose Wheeled Vehicle (H-HMMWV) mounted shelter for mobility and will include a second H-HMMWV for support. The TDN Server will be deployed to the MEF and MSCs down to the battalion/squadron level. It will be in four transit cases and will be 4-man portable. The TDN will give Marine Corps tactical users the ability to transition from Automated Digital Network to the mandated Defense Message System (DMS).

Operational Impact

The TDN augments the existing MAGTF communications infrastructure to provide the MAGTF commander an integrated data network, forming the communications backbone for MAGTF tactical data systems and DMS. The TDN provides its subscribers with basic data transfer and switching services; access to strategic, supporting establishment, Joint, and other service component tactical data networks; network management capabilities; and value-added services such as message handling, directory services, file sharing, and terminal emulation support. It will provide IP connectivity for Tactical Data Systems and the DMS.

Program Status

The program is in the procurement phase with Block I of the production phase IOC anticipated in early FY02.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

General Dynamics — Communication Systems, Taunton, MA

Unit Operations Center (UOC)

Description

The UOC is comprised of Command Centers (CCs) and Combat Operation Centers (COCs). The COC will provide a centralized facility to host Command and Control (C2) functionality for the Command Element (CE), Ground Combat Element (GCE), Air Combat Element (ACE) and the Combat Service Support Element (CSSE). The COC is scalable and supports command echelons for battalion and above. The present procurement objective is concentrating on the GCE initially, to be followed by the CE, ACE, and CSSE. It will provide shelter/tentage, power, cabling, LAN and processing systems to facilitate employment/deployment of C2 mission applications. COC will support information exchange during OMFTS, Sustained Operations Ashore (SOA) and Other Expeditionary Operations (OEO) to enable interaction and flow of information between staff members.

The COC will provide the servers to host applications required by the commander. These applications include the Global Command and Control System (GCCS), Tactical Combat Operations (TCO), Intelligence Analysis System (IAS), Advanced Field Artillery Tactical Data Systems (AFATDS), and Theater Battle Management Core System (TBMCS). The COC will connect to the Tactical Data Network for Digital Message System (DMS) services.

Operational Impact

The COC will be employed as a deployable, modular, reconfigurable, C2 system. The COC will be able to receive and transmit data and voice communications and will provide the commander with a Common Tactical Picture (CTP) to support staff planning and analytical and intuitive decision making. The direction and control of unit operations will be exercised primarily through this center.

Program Status

The UOC is following an Evolutionary Acquisition (EA) approach. Early Operational Assessment of two COC prototypes defined the heavy variant HMMWV (H-HMMWV) with mounted shelter, onboard generator and ECU, and two tents as one of the basic "building blocks." Upgrades and additional prototypes will define additional building blocks to satisfy the C2I and transportation requirements of each echelon. Following Milestone II, the current target is for an integration prime to be selected in mid FY02.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

Initial Prototypes — Naval Warfare (SPAWAR) Systems Center, Charleston, SC

Final Prototypes — Naval Research Lab (NRL)

EMD, LRIP, Production Prime Contractor — TBD

Intelligence

Mobile Electronic Warfare Support System – Product Improvement Program (MEWSS-PIP)

Description

MEWSS PIP is an advanced Electronic Warfare (EW) suite integrated into a Light Armored Vehicle (LAV). It provides the Marine Air Ground Task Force a mobile (MAGTF) EW system capable of operating in a wide variety of tactical situations. The MEWSS-PIP will intercept, identify, locate and exploit modern threat radio communications and battlefield radars; as well as disrupt or deny the threat's use of the electromagnetic spectrum. The program utilizes sensors developed under the U.S. Army Integrated EW Common Sensor Program, and has linkages to the National Security Agency's Defense Cryptologic Program.

Operational Impact

The MEWSS PIP serves as a significant force multiplier, providing friendly forces with a complete picture of communications and non-communications emitters in the area of operations. The MEWSS-PIP can provide targeting information to indirect fire centers, indications and warnings to local commanders, cross-cueing of other intelligence collection assets, and valuable signals intelligence for mission planning.

Program Status

MEWSS-PIP is currently in Low Rate Initial Production. IOT&E II is scheduled for FY01. Milestone III, followed by Full Rate Production, will occur in FY02.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

Prime Integrator:

Lockheed Martin Federal Systems, Oswego, NY

Major Subcontractors:

Lockheed Sanders, Nashua, NH

Rockwell Collins, Cedar Rapids, IA

Condor Systems, San Jose, CA

Marconi/Hazeltine, Greenlawn, NY

Sunstrand, Phoenix, AZ

Will-Burt, Diesel Division General Motors,
Ontario, Canada

Ellis & Watts, Cincinnati, OH

Tecmotiv, Niagara Falls, NY



Topographic Production Capability (TPC)

Description

The TPC is an advanced Geographic Information System, employing commercial computer hardware and software, providing a framework for the Common Operational Picture (COP) and producing digital and hard copy geographic intelligence for the Marine Air-Ground Task Force (MAGTF) Commander. The TPC will be able to generate digital products to be disseminated electronically through the C4I infrastructure, and limited replication of traditional, hard copy products.

Operational Impact

The TPC program has been initiated to design, develop, produce, and deploy an improved system that will fulfill USMC requirements. The TPC will significantly reduce the physical size and logistical footprint of the existing equipment suite and the time required to provide and process topographic data. It will provide robust communication interface capabilities, access to multi-spectrum data communications, and compatibility with military communication, mode requirements. The commercial hardware and software will provide inter/intraoperability with MAGTF, Naval, and Joint C4I systems. With its ability to be assembled into various configurations, TPC will allow commanders scaled capabilities, depending on the mission, size of force, and geospatial requirements.

Program Status

The TPC program is in preparation for procurement of System for Engineering Development Model Integration. Initial fielding is expected in FY01.

Procurement Profile: FY01 FY02

Quantity: 1 1

Developer/Manufacturer

Litton TASC Quantico Office, Dumfries, VA



Air Operations

Common Aviation Command And Control System (CAC2S)

Description

The CAC2S will provide a capability that allows operators to integrate Marine aviation into Joint and combined air/ground operations in support of Expeditionary Maneuver Warfare (EMW), Ship to Objective Maneuver (STOM), Sustained Operations Ashore (SOA), and Other Expeditionary Operations (OEO). The CAC2S will provide tools that perform aviation command and control (C2) planning and execution functions in a positive control environment. It will specifically provide a common suite of tactical facilities, equipment, and interfaces for a system that will replace the legacy C2 equipment currently associated with the Tactical Air Command Center, Tactical Air Operations Center Detachment, Air Traffic Control Detachment, Direct Air Support Center, Direct Air Support Center, Airborne, and the Low Altitude Air Defense Battalion. The CAC2S does not include replacing the air defense weapons or sensors organic to the Marine Air Command and Control System.

The CAC2S will be comprised of tactical facilities, hardware, and software, and will significantly reduce the physical size and logistical footprint of the existing MACCS equipment suites. The CAC2S hardware components will be modular and man portable. Further, components of the CAC2S will be capable of being assembled in a variety of shelter configurations including High Mobility Multipurpose Wheeled Vehicle transport shelters, tactical shelters, general purpose tents, bunkers, and available civilian or military facilities. The CAC2S will provide the means to scale capability up or down by arranging individual communications, processing and display, sensor interface, and shelter modules to the CAC2S system as mission requirements dictate.

Operational Impact

CAC2S will provide the Aviation Combat Element commander with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate air operations. CAC2S will integrate agency functions into a standardized equipment and software application set. Embedded within is an open systems design that will mandate interoperability.

Program Status

Plans are for Increment I IOC in FY06 and FOC in FY08. Increment I includes Hardware and Software Replacement for the TAOC Air Operations Node and the Tactical Air Operations Module.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD

Multi-Role Radar System (MRRS)

Description

The MRRS is a highly mobile radar system to be employed by the Marine Air Control Squadron in all phases of Marine Corps operations. The system will be transportable to operational configuration by four Marines in thirty minutes, and will serve as an ancillary radar providing three-dimensional coverage of those areas out of view of the AN/TPS-59(V)3 due to terrain masking or other line-of-sight limitations. Additionally, the MRRS will be capable of providing radar cueing data of all Short Range Air Defense (SHORAD) units deployed in support of the Marine Air-Ground Task Force (MAGTF). The MRRS is intended to replace the AN/TPS-63 radar, the AN/TPS-73 Air Traffic Control (ATC) radar and the AN/MPQ-62 surveillance radar, and will be able to perform all of the missions currently associated with these existing systems. The MRRS will have connectivity to the Cooperative Engagement Capability (CEC) network. The MRRS will be deployed early during Operational Maneuver From the Sea (OMFTS) to augment seabased air defense sensors and command and control capabilities.

Operational Impact

The radar will provide the speed and flexibility required for enhanced low level Air Breathing Target (ABT) detection, identification, and tracking in the execution of OMFTS, sustained operations and other expeditionary operations. Execution and support of these strategies requires maneuver and control aircraft, cruise missiles, and unmanned air vehicle assets from ships well over-the-horizon to objectives at much greater distances than historically required. In addition, the radar will be capable of cueing and reporting on targets detected within its coverage limits to designated air command and control agencies. The reduced logistical footprint of the radar will enhance the capabilities of MACCS elements in support of all phases of MAGTF operations. Once ashore, the radar will possess the mobility required to keep pace with supported maneuver elements, and will compliment the Marine Corps' long-range radar, the AN/TPS-59 (V)3 by providing accurate low level ABT tracks.

Program Status

The MRRS received a favorable FY00 Milestone 0 acquisition decision and is proceeding with concept exploration activities.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD

AN/TPS-59 (V) 3 Radar

Description

The primary mission of the AN/TPS-59 radar is to provide long-range surveillance, Ground Control Intercept and a Tactical Ballistic Missiles (TBM) surveillance capability for the MAGTF. The radar operates in any and all environmental conditions associated with an on-shore combat zone. The radar supports Anti-Air Warfare (AAW) operations, enroute traffic control to a distance of 300 nautical miles (NM), and TBM surveillance to 400 NM. The AN/TPS-59 (V) 3 serves as the primary provider of land-based long range track data to the Single Integrated Air Picture of the Navy's CEC. The radar is transportable by tactical/non-tactical aircraft, helicopter aircraft, surface shipping, and organic landing force vehicular transportation. The AN/TPS-59 (V) 3 program provided an immediate theater missile defense capability to defend against TBMs through improvements to the Marine Corps' exclusive three-dimensional long-range radar.

Operational Impact

The radar supports expeditionary operations and sustained operations ashore. Its function is the primary sensor of the MACCS. The radar is operated by the TAOC for air defense control and itinerant tactical air traffic control. Additionally, it provides TBM surveillance capability in both an autonomous and TAOC configuration.

Program Status

Research and development efforts beginning in FY01 will develop a Service Life Extension Program (SLEP) to replace obsolete hardware and modernize and enhance electronic protection capabilities, thus ensuring that the AN/TPS 59 (V) 3 radar will remain viable through 2015. The SLEP will be implemented in FY02 through FY05.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

Lockheed Martin Corporation Ocean, Radar and Sensors Systems, Syracuse, N.Y.

Cooperative Engagement Capability (CEC)

Description

The CEC system enables all CEC equipped, Anti-Air Warfare (AAW) weapon systems in a battle force to operate as a single, distributed AAW system. This is accomplished by providing timely sharing of fire control quality sensor data, correlated identification data, and AAW weapon system management status via a Data Distribution System (DDS). The data is processed independently by the Cooperative Engagement Processor (CEP) on-board each Cooperating Unit (CU) to construct a detailed track and status database in real time to provide required remote data to and from the local AAW weapon system elements (hardware and software modified for CEC). In this manner, each CU of a battle force can operate cooperatively with the other CUs, taking advantage of diverse locations and aspect angles, various AAW system capabilities, and degrees of availability by sharing sensor data, and coordinating engagements, fire control illuminators, and AAW missiles.

Operational Impact

CEC facilitates broader air coverage of the battle force against all airborne threats. The current flexible design allows for an Aerostat, and E-2 or E-3 Airborne Early Warning Aircraft . The expeditionary CEC will expand the common air situational picture and facilitate a broad-based, wide-area land and air defensive posture, supportive of a joint tactical commander.

Program Status

CEC is in Phase 0 of its acquisition life cycle, and funded within POM 00.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

LMCS Manufacturer:

Hardware — Raytheon E-Systems, St. Petersburg, FL

Software — John Hopkins University Applied Physics Laboratory, Laurel, MD

CEC Laboratory Manufacturer:

Hardware — NSWC, Crane, IN

Software — Solipsys Corporation, Laurel, MD

Expeditionary Air Traffic Control (ATC)

Description

The Air Surveillance and Precision Approach and Radar Control System (ASPARCS) is the next generation expeditionary ATC equipment that will replace the currently fielded Marine Air Traffic Control and Landing System (MATCAL) with HMMWV mounted radars and a CAC2S-based communications and control suite. It provides Marine aviation with an all-weather ATC capability in an expeditionary or host nation airfield environment. The AN/TSQ-216 Remote Landing Site Tower (RLST) is a system currently being fielded to provide a fully expeditionary HMMWV mounted control tower.

Operational Impact

The ASPARCS will provide a HMMWV mounted state-of-the-art ATC surveillance and precision approach radar system that significantly reduces tactical and strategic lift requirements. The system will be fully interoperable with other CAC2S applications, utilize common hardware and software, and be capable of functioning as an ACE C2 node. The AN/TSQ-216 RLST will provide a fully functional two-position control tower complemented by a robust communications capability. These two programs provide a dynamic expeditionary ATC capability.

Program Status

The acquisition strategy to migrate from MATCAL to ASPARCS has been approved. The ASPARCS IOC is scheduled for FY04 and FOC is scheduled for FY09. The RLST will field 12 systems in FY01.

Procurement Profile: FY01 FY02

Quantity: ASPARCS	0	0
RLST	12	0

Developer/Manufacturer

ATC-CAC2S – TBD

AN/TSQ-216 RLST – Sierra, NV

Tactical Air Operations Center (TAOC)

Description

The TAOC is comprised of several weapon systems that are in various stages of their life cycle. The individual systems include the AN/TYQ-23 (V) 1 Tactical Air Operations Module (TAOM), AN/TPS-59 (V) 3, AN/TPS-63 air surveillance radar, AN/MPQ-62 Continuous Wave Acquisition radar, the AN/MSQ-124 Air Defense Communications Platform (ADCP), an interim Joint Tactical Information Distribution System (JTIDS) capable JTAOM utilizing a modified AN/TSC-131, and the

Sector Anti-Air Warfare Facility (SAAWF). The AN/TYQ-23 (V) 1 will be upgraded to the AN/TYQ-23 (V) 4 as a replacement for existing interim JTIDS capability to work with the ADCP. The TAOC provides the equipment and organization necessary to plan, direct, and control tactical air operations, and to perform specified air space management tasks.

Operational Impact

The TAOM (V) 4 Operator Console Upgrade (OCU) is a reliability centered engineering change that replaces the existing operator console and provides a commercial interface to external networks. The OCU introduces GCCS functionality and windows-based man-to-machine interface. JTIDS was initially integrated through an interim JTIDS Module (JTAOM) configuration. It will be upgraded to a more robust JTIDS solution by incorporating the JTIDS capability in all the (V) four Operations Modules.

Program Status

Initial fielding of TAOM (V) 4 will begin in FY01 and finish in FY02.

Procurement Profile: FY01 FY02

Quantity: TAOM (V) 4 24 5

Developer/Manufacturer

AN/TYQ-23 (V) 4 OCU Upgrade — Litton Data Systems

AN/TPS-59 (V) 3 Upgrade — Lockheed Martin

Fire Support

Advanced Field Artillery Tactical Data System (AFATDS)

Description

AFATDS is an automated fire support command and control (C2) system that will provide a Marine Air-Ground Task Force (MAGTF) with the ability to rapidly integrate all supporting arms assets into maneuver plans via a digital, data communications link. AFATDS will automate the fire planning, tactical fire direction, and fire support coordination required to support maneuver from the sea and subsequent operations ashore. The fully functional AFATDS will support the timely exchange of fire support information and target processing essential to survival on the modern battlefield through the integration of all fire support assets, to include: artillery, rockets, mortars, naval surface fire support, and close air support.

The AFATDS program is a multi-service endeavor. The Army is the lead agency, for this evolutionary development approach to move from the current manual, voice communications-linked fire support C2 system to the fully functional system the Marine Corps began fielding in FY00.

Operational Impact

AFATDS will be the primary Commanders Fire Support Coordination System employed from MEF to Battery level operations. AFATDS will be used to provide the commander with the ability to rapidly employ all fire support assets at his disposal. This will allow him the flexibility to determine what weapon systems to employ in shaping and dominating his battlespace. AFATDS will greatly enhance the interchange of tactical data between all MAGTF Tactical Command and Control Systems through the use of graphics, common operating applications and communications.

Program Status

The USMC AFATDS Program Office adopted the Army's Milestone III in FY 96. The Marine Corps made its Procurement Decision in FY99. Initial Operational Capability was achieved in FY00. Follow on software development will continue throughout the systems lifecycle.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>175</i>	<i>84</i>
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Developer/Manufacturer

Software — Raytheon Systems Company, Fort Wayne, IN

Hardware — General Dynamics, Taunton, MA

Target Location, Designation and Hand-Off System (TLDHS)

Description

The TLDHS is a modular, man-portable, equipment suite that will provide the ability to quickly acquire targets in day, night, and near-all-weather visibility conditions. Operators will be able to accurately determine their own location as well as targets, digitally transmit (hand-off) data to supporting arms elements, and designate targets for laser-seeking Precision Guided Munitions and Laser Spot Trackers. The TLDHS will be fielded to Forward Observer Teams, Naval Gun Fire Spot Teams, Tactical Air Control Parties, and Reconnaissance Teams.

The TLDHS is composed of two subsystems: the Lightweight Laser Designator Range finder (LLDR), and the Target Hand-Off Subsystem (THS). The LLDR and THS can be used independently or together as the TLDHS to provide target location, designation, and hand-off capability.

Operational Impact

TLDHS provides increased accuracy and timeliness of fire support, improved effects of fires on target for surface and air-delivered munitions, and reduces fire support logistics requirements. It also provides increased operator mobility due to the reduction in size, weight, and modular design over existing systems. TLDHS will reduce the likelihood of fratricide due to improved optics and accurate target location.

Program Status

TLDHS is currently in the Engineering Manufacturing and Development phase.

Procurement Profile: FY01 FY02

Quantity: 53 77

Developer/Manufacturer

LLDR — Litton Laser Systems, Apopka, FL.

THS Software — Synetics Corporation, King George, VA



Communication And Communications Support

Global Command Support System (GCSS)

Description

The GCSS is a management framework providing responsive, flexible, and effective management visibility of cross-functional, cross-service, and multi-echelon activities; e.g. logistics, manpower, and finance that support operational mission accomplishment by the commander.

GCSS provides comprehensive Combat Service Support (CSS) information by incorporating the following capabilities: Joint Asset Visibility; Joint Personnel Asset Visibility; Integrated Consumable Item Support; Theater Medical Information Program; Electronic Commerce in Acquisition; Electronic Data Access in Finance; and, selected decision support tools, models, and simulations.

The integration of GCSS and the Global Command Control System (GCCS) serves to provide a key tool for commanders to plan and conduct operations by providing a Common Operating Picture (COP). The COP is a graphical depiction of the warfighting information available in an Area of Operations. Additionally, GCSS applications provide uninterrupted information regardless of the environment or the location.

Operational Impact

The fusion of information, logistics, and transportation technologies will enable forces of the future to be more mobile and versatile, in any location, at any time. The GCSS concept will provide the warfighter with a single, end-to-end capability to manage and monitor units, personnel, and equipment from mobilization through deployment, employment, sustainment, redeployment, and demobilization. As an end state, GCSS will be a secure network environment allowing Department of Defense (DoD) users to access shared data, and applications, regardless of location and supported by a robust network/information-centric infrastructure.

Program Status

GCSS will implement one of the concepts in Joint Vision 2010: Focused Logistics. It will integrate currently operating systems with emerging technologies such as shared data. The DISA timeline for implementation of GCSS is 2005-2006. The Marine Corps has begun work to establishing a Shared Data Environment, a fundamental element of GCSS. Initial efforts are focused at the ability to provide a COP that includes logistical information. IOC is anticipated in FY02.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD

Digital Wideband Transmission System Product Improvement Program (DWIS PIP)

Description

The DWTS PIP is a three component upgrade to the fielded AN/MRC-142 Radio Terminal Set. Changes include a Shore Mount Accessory Kit (SMAK), an Uninterruptable Power Supply (UPS), and a robust multiplexer. The AN/MRC-142 SMAK will allow amphibious deployed Marines to establish a ship-shore Digital Wideband Transmission Link and the UPS and multiplexer will improve system reliability and performance.

Operational Impact

The DWTS SMAK will allow amphibious deployed Marines to establish a link with the Navy's DWTS and provide the Marine Expeditionary Unit Commander versatile ship-to-ship and ship-to-shore digital connectivity throughout the phases of an amphibious landing. Without the SMAK, a MEU Commander's communications assets are severely limited. The UPS will allow the AN/MRC-142 to continue communications in the event of a sudden loss of power.

Program Status

Milestone III was achieved in early FY01. Production and fielding are anticipated later in FY01.

<i>Quantity: SMAK</i>	<i>18</i>	<i>0</i>
<i>Multiplexer</i>	<i>18</i>	<i>400</i>
<i>UPS</i>	<i>418</i>	<i>0</i>

Developer/Manufacturer

SMAK — Contact Corporation, Sterling, VA

UPS — Acumentrics Corporation, Westwood, MA

MUX – DNE, Wallingford, CT

Data Automated Communications Terminal (DACT)

Description

DACT will be a computer and communications terminal, or family of terminals used in both tactical and garrison environments for preparing and exchanging information. It will provide a shared Common Tactical Picture (CTP) of friendly and enemy unit locations and target identification augmenting the small unit commanders' ability to conduct effective Command and Control (C2). DACT has the ability to create an electronic version of paper maps and china marker acetate overlays. These digital routes and overlays can be sent to other commanders with DACT, and Intelligence Operational Workstations (IOW), who then have the ability to review, change, update, and forward to other DACTs and IOWs. DACT also has the ability to exchange Variable Message Format messages. The DACT will be fielded in a vehicle mount (Mounted DACT) and foot mobile (Dismounted DACT) configuration. The vehicle mounted DACT will be fielded in the High Mobility Multipurpose Wheeled Vehicle, Tank, Amphibious Assault Vehicle and Light Armored Vehicle.

Operational Impact

The DACT is a situational awareness tool that will provide unit commanders at the battalion level and below a real time Common Tactical Picture (CTP). DACT is the forward entry device that will provide information to all Marine Corps critical C2 systems such as the Global Command Support System, Tactical Combat Operations, Intelligence Analysis System, and Intelligence Operations Workstations. Provided data will enhance these powerful C2 systems in reaching their full potential

Program Status

The DACT is currently in the Engineering and Manufacturing Development Phase of the Acquisition lifecycle. Operational Testing is anticipated in FY01.

Procurement Profile: FY01 FY02

<i>Quantity: Mounted</i>	<i>1083</i>	<i>0</i>
<i>Dismounted</i>	<i>0</i>	<i>1813</i>

Developer/Manufacturer

Hardware Manufacturer — EPS/Tadiran, Tinton Falls, NJ

Vehicle Mount Adapter — Raytheon Technical Services Corp, Indy, IN

Software Developers — INRI, MCTSSA, San Diego, CA

STAR-T (GMF/STAR-T)

Description

The STAR-T satellite communications terminals will be mounted on a High Mobility Multipurpose Wheeled Vehicle and will be capable of providing four downlinks of 1.544 Mega bytes per second (Mbps) each and one uplink with an aggregate of 8.192 Mbps. The terminals will have bulk encryption and can interface with either Tri-Service Tactical Communications (TRI-TAC) conditioned diphase or commercial equipment at the baseband or intermediate frequency level. The terminals will be backwards compatible with the AN/TSC-85B and the AN/TSC-93B SATCOM terminals and other TRI-TAC systems. The U.S. Army is the lead service for this Joint program.

Operational Impact

Fielding the STAR-T terminals will help alleviate the burden on today's communication systems by providing increased bandwidth to meet the Marine Air-Ground Task Force (MAGTF) commander's requirement for increasing quantities of intelligence and situational awareness.

Program Status

Milestone III (procurement) is scheduled for FY01 with IOC scheduled in FY02.

Procurement Profile: FY01 FY02

Quantity: 40 0

Developer/Manufacturer

Raytheon Systems, Marlborough, MA



Global Broadcast Service (GBS)

Description

GBS is a smart-push/user-pull satellite communications system that will provide large volumes of information to deployed, or garrison forces. The system is composed of a space segment, a transmit suite and receive suites. The receive suites will receive and disseminate global broadcasts, at up to 24 megabits-per-second, of classified and unclassified standard information products. Products range from imagery, intelligence, video, and theater message traffic, to Joint and service-unique news, weather, and Morale Welfare and Recreation programming.

The receive suites will be either Fixed Ground Receive Suites (FGRS) or Transportable Ground Receive Suites (TGRS).

Operational Impact

Receive suites, which provide near worldwide information access, will be fielded to Marine Expeditionary Forces, division and regiment levels.

Program Status

This Joint, US Air Force led, program is currently in a Pre-Milestone III status. It is scheduled for operational testing and a production decision in FY02. The Marine Corps plans to begin fielding in FY04

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

Raytheon

Asset Tracking Logistics And Supply System II+ (ATLASS II+)

Description

ATLASS II+ is the Marine Corps integrated supply, maintenance, and materiel readiness system of the future. ATLASS II+ will replace the current mainframe-based systems (MIMMS, ATLASS I) with a flexible, responsive, user-friendly, PC-based system using the client server environment and a graphics user interface (Windows NT). Future supply and maintenance (materiel management) operations and readiness reporting will be characterized by the following: one system for materiel management and materiel support management for all classes of supply (except Class V) using a single system, distributed versus centralized computing and a logistics Relational Database Management System (RDBMS).

Operational Impact

ALAS II+ will provide a real time view of the materiel posture, supply and maintenance requirements, and readiness information to operating forces of the Marine Corps, in any environment, at any location. ATLAS II+ replaces mainframe MIMMS and ATLASS I. It interfaces with Mainframe SASSY. It is the Marine Corps enterprise solution for moving away from mainframe processing and batch mode of operations.

Program Status

Fielding and implementation will be complete to II MEF during FY01. Fielding and implementation of I MEF will begin during FY01, and fielding and implementation to III MEF and MARFORRES will begin in FY02.

Procurement Profile: FY01 FY02

<i>Quantity: Laptops</i>	<i>184</i>	<i>61</i>
<i>Workstations</i>	<i>578</i>	<i>109</i>
<i>Servers</i>	<i>54</i>	<i>30</i>

Developer/Manufacturer

Software — SPAWAR Systems Center, Chesapeake, VA

System Integrator — SPAWAR Systems Center, Charleston, NC

Part 2 – Ground Combat Element Programs

The Ground Combat Element (GCE) is organized from resources and units of one or more divisions. This includes the division headquarters, infantry regiments, artillery regiments, and separate battalions. The mission of the GCE is to locate, close with, and destroy the enemy by fire and maneuver or repel the enemy's assault by fire and close combat. The GCE commander has the means to conduct combined-arms operations. It is imperative the GCE's resources be integrated with the full complement of Marine Air-Ground Task Force (MAGTF) capabilities so they may be brought to bear against the enemy. For the MAGTF commander, the GCE provides a capability to exercise command and control, conduct maneuver, apply firepower, and provide force protection.

The following programs will enable the GEC to execute EMW through enhancements in mobility, survivability, and accuracy of fires.



Mobility

Advanced Amphibious Assault Vehicle (AAAV) Program

Description

The Advanced Amphibious Assault Vehicle (AAAV) will join the MV-22 and LCAC, as an integral component of the amphibious triad required for executing Expeditionary Maneuver Warfare. The AAAV will allow naval expeditionary forces to eliminate the battlefield mobility gap and, for the first time in the history of Naval warfare, maneuver ashore in a single, seamless stroke giving both the ships and landing forces sufficient sea space for maneuver, surprise, and protection. The AAAV's unique combination of offensive firepower, armor, and Nuclear, Biological, and Chemical (NBC) protection, and high-speed mobility on land and sea represent major breakthroughs in the ability of naval expeditionary forces to avoid an enemy's strengths and exploit its weaknesses. The AAAV remains the Marine Corps' number one ground acquisition priority.

Procurement Profile: FY 01 FY 02

Quantity: 0 0

Operational Impact

The AAAV will allow immediate, high-speed surface maneuver of Marine infantry units as they emerge from ships located over the visual horizon 25 nautical miles and beyond. Projection of these forces will be conducted in a manner that exploits the intervening sea and land terrain to achieve surprise and rapidly penetrate weak points in the enemy's littoral defenses to seize operational objectives.

Program Status

The first AAAV prototype was publicly presented in June 1999. In August 1999 the prototype began contractor shake out testing, with Developmental Testing and Early Operational Testing conducted concurrently. Under the current schedule, Full Rate Production will begin and IOC will be achieved in FY06. A total of 1013 AAAVs will be produced. FOC is currently planned for FY 16.

Developer/Manufacturer:

General Dynamics Amphibious Systems-located at the AAAV Technology Center in Woodbridge, VA

Assault Breaching Vehicle (ABV)

Description

The Assault Breaching Vehicle (ABV) is a full tracked, armored engineer vehicle specifically designed for conducting in-stride breaching of minefields and complex obstacles. Based on the M1 Main Battle Tank chassis, it provides the latest technology in crew protection and vehicle survivability while having the speed and mobility to keep pace with the maneuver force. Integrated systems provide maximum commonality with the current tank fleet.

Operational Impact

The ABV will improve the mobility and survivability of the Marine Air-Ground Task Force (MAGTF). The ABV will provide a deliberate assault breach capability through minefields and complex obstacles. It will allow assault units to move rapidly through obstacles before threat forces have the opportunity to mass fires or establish defenses.

Program Status

Milestone 0 for the Marine Corps ABV program was reached in FY00. The program is pending funding release.

Procurement Profile: FY01 FY02

Quantity: 01 0

Developer/Manufacturer

TBD



Small Unit Riverine Craft (SURC)

Description

The Small Unit Riverine Craft (SURC) will provide Marine forces with a small craft designed to provide tactical waterborne lift for the conduct of conventional military operations in a riverine environment. The SURC will be able to carry 13 to 18 combat loaded Marines, plus a crew of two, and remain afloat as a survival platform when filled with water. The craft will have a hull propulsion system with a draft of 24 inches or less when operationally loaded in a stationary position. It will maintain an average speed of 30 to 35 knots and be capable of beaching bow first on unobstructed shorelines with mud, sand, silt, and gravel surfaces at one-quarter cruising speed. In addition to a rigid hull, the SURC will have heavy machinegun mount(s) to integrate both organic medium and heavy machineguns. It will be capable of external tactical lift by a CH-53D heavy lift helicopter.

The SURC will provide tactical mobility and serve as a weapons platform for the Ground Combat Element (GCE) of a Marine Air Ground Task Force (MAGTF) in sustained operations, in a water-dominated environment. It will be able to integrate with the Global Positioning System (GPS) capability and with currently fielded and future Combat Net Radio (CNR) systems. The SURC will also be interoperable with current and future universal weapon mounts and pintle adapters for tactical vehicles

Operational Impact

The SURC, Small Unit Riverine Craft, escorted by the Riverine Assault Craft, will allow the Marine Corps to conduct operations in areas dominated by river networks. Additionally, the SURC will assist in denying the enemy's use of these river areas. The SURC will replace the Rigid Raiding Craft.

Program Status

Milestone I is anticipated in FY01. During FY02, the SURC will conduct developmental testing and go to Milestone II. Operational testing and a production contract are expected in FY03.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

TBD

Light Strike Craft (LSC)

Description

The LSC is an over-the-horizon small boat raid platform in the Marine Corps family of small craft. The LSC is designed to be forward-deployed with Marine Air Ground Task Forces (MAGTFs) such as Marine Expeditionary Units (MEUs). The LSC will be capable of carrying a 13-man Marine infantry squad through high surf zones. With a range in excess of 50 nautical miles, the LSC will fully support Operational Maneuver From The Sea and Ship To Objective Maneuver. Typically launched from 20 to 25 nautical miles from the objective, ten to twelve LSCs will carry a Marine Infantry Company during the conduct of an amphibious operation.

The LSC will be designed to be modular. Therefore, LSCs can be configured to carry logistics, mount extra radios, and mount weapons. The craft will operate off-plane in conditions up to Sea State 4 and is designed to traverse high surf zones.

Operational Impact

The acquisition of the Light Strike Craft will operationally impact the performance of amphibious operations, by replacing a craft of marginal performance. While providing a stable ride with protection from an organic gun mount, the LSC will negotiate a surf zone and deliver the embarked force to a beach landing site. The force will conduct its mission and return to the landing site for link-up with the LSC.

Program Status

The LSC program is a new initiative that is currently in Phase 0. The program is fully funded in POM 2002.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

TBD

Firepower

Lightweight 155mm Howitzer (LW-155)

Description

The LW-155 is a joint USMC/Army 155mm towed artillery system that will meet or exceed all the requirements of the current M198 system while reducing the weight from 16,000 to 9,000 pounds. The lower weight of the LW-155 allows for much faster emplacement and displacement and also allows for tactical lift by the CH-53D heavy lift helicopter and MV-22, and its smaller size footprint reduces the strategic lift required. While the crew size has not changed from the M-198, the actual operation of the howitzer requires fewer personnel, allowing for local security and dispersed battery operations. The lighter XM777 makes for a highly mobile fire support system for EMW. The LW-155 also offers significant advantages in the areas of automatic breech opening, automatic primer feed, crew ergonomics, stability, and safety. The weapon is compatible with all U.S. and NATO standard and developmental 155mm munitions and propelling charges. The maximum rate of fire is five rounds per minute. Maximum range using unassisted projectiles is 24 kilometers (15 miles), and with assisted projectiles it is 30 kilometers (18 miles). LW-155 can traverse 400 mils left and right of center. The lightweight design of the 155 also allows for quick, easy shifting to fire missions outside primary traverse limits.

The development of a pre-planned product improvement which digitizes the weapon is being funded by the U.S. Army. This upgrade known as Towed Artillery Digitization (TAD) will add an aiming and pointing system, on board GPS location, on board fire control computations, and radio communications. The fire control computer will integrate data from a muzzle velocity system as well as stored data from previous missions and shell fuze combinations. These enhancements will greatly increase response time as well as accuracy. The battery will no longer need to wait for survey, but can emplace in any suitable location quicker and with better accuracy than available today even with survey. These capabilities allow for coordinated massed fires from dispersed firing locations. TAD will also provide an automated direct fire sight that integrates a laser range finder with a ballistic computer to deliver probability of kills not achievable with conventional systems. The TAD upgrades can be retrofitted onto the early USMC howitzers by 2nd echelon mechanics.

Operational Impact

The LW-155 will provide significant increases in performance over the current M198 system. Compared to the M198 survivability is increased by 70%, lethality is improved, providing 25% more kills, and the weapon can traverse 20% more terrain than the system it is replacing.

Program Status

The program is in the Engineering and Manufacturing Development (EMD) phase with EMD scheduled for completion in late FY01. Production is scheduled to begin in FY02 with IOC (first two Battalions) scheduled for FY04. TAD development began in late 1999 and will continue through FY03. Production will begin in late FY03.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

Developed by Vickers Shipbuilding & Engineering Limited, in the United Kingdom. Plans are to manufacture up to 70% of the weapon in the United States by a contractor who is still to be determined.



Modular Weapon System (MWS)

Description

The MWS is a modification to the M16A2 service rifle and the M4 carbine. The system consists of an upper receiver modified by building a Mil Standard 1913 rail into the design in place of the integral carry handle/sight to permit quick mounting of various day, night, and thermal sights. Additionally, hand guards with rails are attached to the barrel assembly to mount various accessories such as a modified M203 launching system, flashlights, and Infra Red laser pointers.

Operational Impact

The MWS will result in a significant improvement over the current ability to mount the various accessories being developed for the M16A2 rifle series. It will improve the accuracy, target detection, engagement day or night, and maintainability of the M16 family of rifles.

Program Status

Congressional plus up provided \$1M for procurement during FY99. Funding for remainder of AO is to be competed in POM 02.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

Colt's Manufacturing Company, Inc.



Predator Short Range Antitank Weapon (SRAW)

Description

The Predator (SRAW) is a one-man portable, short range, disposable, fire-and-forget antitank weapon capable of defeating all current and future Main Battle Tanks (MBT) incorporating advanced armor protection, supplemental armor kits, and Explosive Reactive Armor (ERA). The Predator features an advanced guidance and control system, a soft launch capability, and a lethal, explosively formed penetrator warhead. Once launched, the missile flies in a top-attack (i.e., fly over, shoot down) profile and uses optical and magnetic sensors to detect the target and detonate the warhead. Predator can effectively engage moving targets from 17 to 200 meters and stationary targets from 17 to 600 meters. Its modular design will enhance the ability to incorporate future product improvements.

Operational Impact

The Predator (SRAW) will provide the infantry battalion with the organic capability to engage and destroy ERA-equipped MBTs at ranges between 17 and 600 meters. The soft-launch and fire-and-forget features will significantly enhance gunner survivability and the ability of the battalion to conduct anti-armor operations in urban terrain. It will provide greater range and lethality than either the AT-4 or Shoulder-launched Multipurpose Assault Weapon.

Program Status

The Predator (SRAW) program is in the final stages of the Engineering and Manufacturing Development phase of the acquisition cycle. Award of a Low Rate Initial Production Contract is planned for FY 01. The Milestone III Full Rate Production decision and Initial Operational Capability are planned for FY03 with Full Operational Capability planned for FY08.

Procurement Profile: FY01 FY02

Quantity: 400 450

Developer/Manufacturer

Principle Development Activity — Naval Surface Warfare Center-Dahlgren Division
Prime Contractor — Lockheed Martin Missiles and Fire Control Division, Orlando, FL

Major Subcontractors:

- Aerojet, Sacramento, CA
- Alliant Technology, Rocket City, WV
- Systron Donner, Concord, CA
- Primex, Marion, IL



Complementary Low Altitude Weapons (CLAWS)

Description

The CLAWS is a mobile, ground based, air defense missile system designed to defeat threat cruise missiles, unmanned aerial vehicles, and fixed-wing and rotary-wing aircraft. CLAWS takes advantage of Government Furnished Equipment (GFE), Non-Developmental items (NDI) and technology by integrating current inventory DoD missiles and launch rails with an existing High Mobility Multi-purpose Wheeled Vehicle (HMMWV). CLAWS consists of a minimum of four Advanced Medium Range Air-to-Air Missiles (AMRAAM) mounted on a HMMWV. The CLAWS is an Avenger system with its turret removed and replaced by an AMRAAM capable launch structure.

Operational Impact

CLAWS gives complementary air defense capability providing speed and flexibility required for the execution of Operational Maneuver From the Sea (OMFTS). It will possess the mobility and lethality required to keep pace with supported maneuver elements to fill gaps in Naval Air Defense coverage created by extended littoral operations. ItClaws will complement Stinger/Avenger systems by prosecuting enemy cruise missiles and other air breathing targets beyond the capabilities/ranges of those systems.

Program Status

Concept exploration activities are proceeding. A Milestone I/II decision is anticipated in FY01. Additionally, a budget proposal initiative was approved during has been submitted for consideration in POM 02 deliberations. IOC is anticipated during FY05.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD



Pedestal Mounted Stinger (Avenger)

Description

The Avenger system provides the Marine Air-Ground Task Force (MAGTF) with a highly mobile Air Defense platform that employs the Stinger missile against close in, low altitude, fixed and rotary wing aircraft throughout the theater of operations. The Avenger is a High Mobility Multi Wheeled Vehicle (HMMWV) based platform capable of near simultaneous firing of 8-guided air defense Stinger Missiles via the Standard Vehicle Mounted Launcher and an electronic .50 caliber machinegun. The Avenger employs a gyro-stabilized turret, which allows the operator to shoot both missiles and .50-caliber machinegun on the move, and is additionally equipped with, Identification Friend or Foe (IFF), Forward Looking Infrared (FLIR), and a laser range finder. The Avenger will have upgrades, which include the initial procurement of the Avenger Fire Control Computer , which replaces the obsolete Avenger Control Electronics and provides an embedded Automatic Video Tracking capability.

Operational Impact

The Avenger employs the only Air Defense Weapon in the forward area. It supports the maneuver style of warfare of the Marine Air Ground Task Force providing defense against high speed, close in, low altitude, fixed and rotary wing aircraft throughout the theater of operations. However, the magnitude of the threat has proliferated to the point that most developed countries are developing more advanced systems. The Avenger enhancements allow the MAGTF to fully capitalize on the upgrades to the Block I configuration Stinger Missile and provides increased defense against low-aspect angle targets, reactive infrared countermeasures, night engagements, and engaging targets in clutter. This upgrade has increased the acquisition range of the missile (out beyond 10 kilometers) and has been proven to be more effective against Unmanned Aerial Vehicles and low end Cruise Missiles.

Program Status

The Avenger is a fully fielded system. The Avenger upgrades will start fielding in early FY02 and will be completed in late FY03.

Procurement Profile: FY01

Quantity: 0

FY02

202

Developer/Manufacturer

Raytheon Corporation



Thermal Weapons Sight (TWS)

Description

The TWS is a lightweight, low-power, high- performance Forward Looking Infra-Red device. The TWS will augment existing crew-served night vision sights. It does not rely on visible light for operation, and is virtually unaffected by weather and obscurants (both natural and man made). The TWS operates by discerning the temperature variation between targets and their background. The TWS is completely passive and, although designed for target detection and engagement with Marine Corps crew served weapons, can be used to aid surveillance and detection.

The Medium TWS will be able to view personnel from 1,100 meters in clear air and 500 meters in obscured air and will weigh five pounds or less. The Heavy TWS will be able to view personnel from 2,200 meters in clear air and 500 meters in obscured air and will weigh six pounds or less. The TWS will be able to be mount on the MIL-STD 1913 Accessory Mounting Rail and the operator will be able to boresight to the weapon.

Operational Impact

The 24-hour capability of the Thermal Weapon Sight will significantly enhance the Marine Corps day and night fighting capability through improved target detection and engagement. The system can “see” through obscurants, which impair sighting systems operating in the visible and near visible spectrum. The TWS has the ability to acquire targets under most atmospheric conditions, at ranges comparable to the maximum effective ranges of the weapons with which it is employed.

Program Status

The U.S. Army, as the lead service, has reached a Milestone III for the Low Rate Initial Production and Bridge configured TWS and has awarded an OMNIBUS production contract for the manufacture of the TWS and Driver’s Vision Enhancer (DVE). A Marine Corps Acquisition Decision Memorandum is expected in FY01.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

Raytheon Systems Company



M1A1 Firepower Enhancements (M1A1 FEP)

Description

This firepower enhancement program is a suite of upgrades for the M1A1 Tank. It will include a second-generation thermal sight and a Far Target Location (FTL) capability. The second-generation thermal sight consists of upgrades to the M1A1 stabilization system, infrared optics, an infrared focal plane array, associated analog and digital electronics, display, brackets, and cables. The FTL system includes a North Finding Module (NFM), brackets, cables, and inputs from the existing laser range finder and Precision Lightweight Global Positioning System Receiver (PLGR). The FTL system will provide the tank crew with accurate target location within two seconds after lasing the target. The FTL solution is determined by utilizing the inputs of the laser range finder, PLGR and NFM.

Operational Impact

As part of a Marine Air-Ground Task Force (MAGTF), the M1A1 Tank provides maneuver and armor protected firepower to the Ground Combat Element. As the mobility and survivability of threat systems improve, the M1A1 must increase the speed and accuracy with which they acquire and engage targets. The M1A1 FEP system will provide thermal imaging and FTL capability that will overmatch threat sensor performance, thereby improving the ability of Marine Corps tank crews to engage and defeat an enemy at extended ranges. The M1A1 FEP system will provide for increased target detection, recognition, identification, and FTL capabilities during day and night operations, through smoke, fog, or other battlefield obscurants.

Program Status

The M1A1 FEP is currently in Acquisition Phase: Phase 1 Development.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

DRS Sensor Systems, Inc. Torrance, CA

Raytheon Systems Company, McKinny, TX



Family of Improved Mortars (FIM)

Description

The FIM initiative will enhance U. S. Marine Corps and U.S. Army mortar systems: the M224 60mm mortar, the M252 81mm mortar, and the M120 120mm mortar (U.S. Army only). The program will increase efficiency, accuracy, and survivability of these mortar systems through the Mortar Fire Control System (MFCS)(Light). The program also seeks to lighten the load of 81mm and 120mm gun crews by reducing the weight of the cannon, base plate and bipod.

Operational Impact

The MFCS (Light) will drastically enhance the ability of the 81mm Mortar Platoon to provide immediate, accurate fire support for the infantry battalion under all tactical situations. In addition to a drastic enhancement in the speed and accuracy of normal mortar missions, the MFCS will provide the mortar platoon with new capabilities to conduct split platoon and section operations, hip shoots, raids, and missions in support of Military Operations on Urbanized Terrain, Low Intensity Conflict, and Operations other than War. Additionally, lightweight tube and bipod technology will enhance the mobility, and therefore, broaden the operational impact of the 81mm mortar platoon.

Program Status

The Marine Corps is developing these systems jointly with U.S. Army. The program is in the pre-MS 0 stage.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD



Follow On To Shoulder-Launched Multipurpose Assault Weapon (FOTS)

Description

The FOTS is a lightweight, short range, fire-and-forget assault weapon comprised of a launcher and integral sighting system that enables a Marine to neutralize a variety of ground targets. The FOTS will replace the Shoulder-launched Multipurpose Assault Weapon without loss to present capabilities. The enhanced capabilities of the FOTS include fire from enclosures, adaptability to a variety of warheads, reduced launch signature, and increased lethality and breaching. The FOTS complements the satchel charge by providing a stand-off capability to destroy bunkers and breach urban structures. It also provides the capability to neutralize vehicles and personnel.

Operational Impact

The FOTS will ensure the assault elements of the Ground Combat Element retain the capability to quickly destroy fortified positions and achieve the capability to penetrate urban structures to facilitate maneuver of friendly forces and destruction or neutralization of opposition forces.

Program Status

FOTS is currently in the Concept and Technology Demonstration Phase.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

- LOSET Propulsion Project — CMS Defense Systems, Titusville, FL
- Liquid Ejection Propulsion Project — InvencomComm Inc., Charlotte, NC
- Fire Control System — Consolidated Industrial Associates, Port St. John, FL
- Confined Space Propulsion Project — Talley Defense Systems, Mesa, AZ



High Mobility Artillery Rocket System (HIMARS)

Description.

The HIMARS will be a wheeled, indirect fire, rocket/missile system capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System Family of Munitions. The basic system (launcher) will consist of a Fire Control System, a carrier (automotive platform), and a launcher-loader module that will perform all operations necessary to complete a fire mission.

The HIMARS will provide ground-based, responsive General Support and General Support-Reinforcing (GS/GSR) indirect fires that accurately engage targets at long range, with high volumes of lethal fire, under all weather conditions and throughout all phases of combat operations ashore. It will fire both precision and area munitions and will have a threshold range of 45 kilometers.

Operational Impact

HIMARS is ideally suited to support Marine Expeditionary Force level operations. Transportable by land, sea, or air without special preparation, and KC-130 transportable with roll on/off capability, HIMARS will be operational and maintainable in all types of environments where Marines deploy.

Program Status

HIMARS recently received a favorable Milestone A decision. With FY01 Congressional funding, the Marine Corps intends to purchase two prototype launchers, rockets, and parts, and establish a program office that will oversee the studies and evaluations necessary to support the fielding of HIMARS. Current plans are to field two battalions in the 14th Marines with 18 launchers each. Production is anticipated to begin in FY06, with an Initial Operational Capability achieved in FY08.

Procurement Profile: FY01 FY02

Quantity: 0 2

Developer/Manufacturer

Prime Contractor — Lockheed Martin, Dallas, TX

Major Subcontractors:

Steward & Stevenson, Sealy, TX

O'Gara-Hess, Cincinnati, OH



M795 High Explosive (HE) Projectile (M795 HE)

Description

The M795 HE will improve the overall effectiveness of the 155mm artillery weapon system by using technological improvements to increase the anti-personnel and anti-material effectiveness, accuracy, and range as compared to the currently fielded M107. The M795 has a welded rotating band that allows it to be fired with the M119 and M203 propelling charges, thus generating an additional six kilometers in range (to 22km) and 30 percent greater lethality than the M107.

The M795 will also be used to determine registration corrections for expeditious computation of range, deflection and fuze setting corrections for use with other members of ballistically similar projectiles.

Operational Impact

The M795 HE will enhance a commander's ability to mass artillery fires without massing platforms to increase survivability. Enhanced range and lethality will facilitate the attack of deeper targets including control points, logistical sites, and air-defense sites. The additional range will also permit Marine Corps artillery units to attack deep targets in support of Marine Air Ground Task Force (MAGTF) objectives, and will reduce the need for artillery units to displace in order to provide support to highly mobile ground combat units. The increased explosive payload and more effective fragmentation pattern will improve the lethal effects against enemy ground-based fire support systems, light armored vehicles, standing, and prone personnel.

Program Status

The M795 projectile is an Army program and is currently in production. The Marine Corps has adopted the U.S Army requirements for the M795 projectile and is proceeding with safety review board testing and a production decision.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
<i>Quantity:</i>	30,269	21,616

Developer/Manufacturer

Chamberlin Corporation, Scranton, PA

Mortar Ballistic Computer (MBC)

Description

The MBC will replace the M16 and M19 Plotting Boards as the primary means of computing fire control data for infantry 60mm and 81mm mortar units. It provides faster, more accurate computation of firing data under all combat and training conditions. The MBC system increases combat power using existing Marine Corps force structure.

As an incremental acquisition, the initial system will be a manually operated MBC able to compute technical mortar firing data. Eventually, the complete system will be a digitally fed MBC linked to the Marine Corps fire support command and control system via the Advanced Field Artillery Tactical Data System (AFATDS) for enhanced fire support coordination, situational awareness, and command and control capabilities.

The MBC will integrate a Global Positioning System (GPS), Combat Net Radio and Tactical Data Systems, and will be interoperable with currently fielded and future mortar simulation systems. The MBC will implement software functionally compatible with currently fielded and future versions of the Marine Air-Ground Task Force (MAGTF) Command, Control, Communications, computers and Intelligence and Information (C4I2) System Software Baseline.

Operational Impact

The MBC will revolutionize mortar operations by improving the speed, precision, and accuracy of mortar gunnery. Additionally, it will provide digital connectivity, integrating mortar fire into automated fire support planning and execution. Unlike current manual gunnery, this automated system will incorporate all five elements of accurate predicted fires and will provide responsive, accurate gunnery solutions enhancing lethality and support to maneuver elements.

Program Status

The MBC Program was reinitiated at MS 0. An accelerated acquisition and/or a combined MS I-II are anticipated.

Procurement Profile: FY01 FY02

Quantity: 0 0

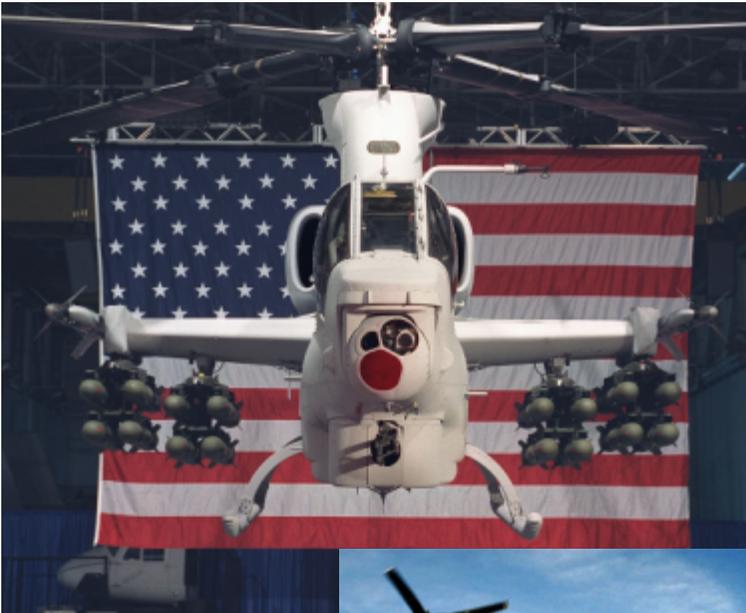
Developer/Manufacturer

An informal market investigation has identified the following as potential sources:

- California Microwave (Northrop Grumman)
- DME Corporation
- THE-UCS
- Litton Data Systems
- Megabyte International Corporation
- Sterling Software
- Zengrange Defense Systems

Part 3 – Aviation Combat Element Program

The Aviation Combat Element (ACE) provides the Marine Air-Ground Task Force (MAGTF) commander with enormous flexibility, mobility, and firepower. Part of the ACE's mission is to provide day and night, all-weather air support to the MAGTF. It accomplishes this mission through responsive offensive air and assault support. Offensive air support isolates the battlespace and provides timely and accurate close air support to maneuvering forces. Assault support ensures the rapid movement of combat power ashore, and provides a means to quickly maneuver ground forces in the battlespace. The following aviation programs complement the Marine Corps' expeditionary nature and enhance the execution of EMW.



Aerial Reconnaissance

Vertical Takeoff and Landing (VTOL) Unmanned Aerial Vehicle (UAV)

Description

The Navy and Marine Corps have initiated a program to develop and field a Vertical Takeoff and Landing (VTOL) Unmanned Aerial Vehicle (UAV). PEO (W) as the lead acquisition agent for the VTUAV has selected Northrop Grumman's "Fire Scout" for development. The Fire Scout is an unmanned version of a Schweizer helicopter equipped with an EO/IR/Laser Designator payload. This system is planned to replace the current UAV system, Pioneer, beginning in FY03. The "Fire Scout" will have the capability to takeoff and land from any air capable ship (a ship possessing at least one helicopter landing spot) as well as operate from austere unprepared sites ashore. Additional capabilities include: range of 110 nm, speed of 135 kts, and service ceiling minimum of 15,000 ft.

Operational Impact

The concept of expeditionary maneuver warfare is intensive from both the manpower and technology perspective. This concept is based on leveraging technology to both reduce risk and manpower required. The use of unmanned systems, such as UAV's, is a key component of this concept. The Marine Corps' vision of the Tactical UAV is to operate it as an integral part of our MAGTF ACE. The Marine Corps foresees a Tactical UAV with a VTOL capability that can operate from any air capable ship as well as extremely austere locations ashore. The Marine Corps requires a very robust system that is easily deployed and sustainable to provide the MAGTF and JFC commanders' with maximum capability and flexibility.

Program Status

The VTOL ORD was approved by the JROC during 1999. OPNAV (code N-75), resource sponsor, received full funding for a VTOL UAV capability for a new program start during FY00. A contract for Engineering and Manufacturing Development (EMD) was awarded to Northrop Grumman in March 2000. The program has completed its initial design review and the contractor has conducted risk reduction testing of the first prototype. The program is currently proceeding on schedule and within Budget.

Procurement Profile: FY01

Quantity: LRIP 1

FY02

0

Developer/Manufacturer

Northrop Grumman

Assault Support

MV-22 Osprey

Description

The MV-22 Osprey tilt-rotor is a revolutionary, advanced technology vertical/short takeoff and landing (V/STOL), multi-purpose tactical aircraft being procured to replace the current fleet of Vietnam era CH-46E and CH-53D aircraft. The MV-22 will join the AAV and LCAC as an integral part of the amphibious triad necessary to execute the concept of OMFTS. Specific missions include amphibious and land assault, raid operations, medium cargo lift, tactical recovery of aircraft and personnel (TRAP), fleet logistic support, and special warfare. The MV-22's design incorporates the advanced but mature technologies of composite materials, fly-by-wire flight controls, digital cockpits, airfoil design, and manufacturing. The MV-22 Osprey is capable of carrying 24 combat-equipped Marines or a 10,000 pound external load. It also has a strategic self-deployment capability with a 2,100 nautical mile range with single aerial refueling. The MV-22's 38-foot prop-rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the MV-22 into a high-speed, high-altitude, fuel-efficient turbo-prop aircraft. The MV-22 is a multi-mission aircraft designed for use by all the Services. The Marine Corps, Navy, and Air Force have committed to fielding this unique aircraft. Procurement of the MV-22 remains the Marine Corps number one aviation acquisition priority.

Operational Impact

The MV-22 will be the cornerstone of Marine Corps assault support possessing the speed, endurance, and survivability needed to fight and win on tomorrow's battlefield. This combat multiplier represents a quantum improvement in strategic mobility and tactical flexibility for amphibious and prepositioned maritime forces.

Program Status

The MV-22 has completed developmental testing and the EMD phase of the program. Thirty Low Rate Initial Production (LRIP) aircraft have been procured in four lots to support MV-22 initial fleet fielding. OPEVAL completed on 15 July. Opeval and follow-on verification determined the MV-22 to be operationally effective and operationally suitable for the Marine Corps mission. The total programmed buy for V-22 is 458 total aircraft with 360 for the Marine Corps, 48 for the Navy, and 50 for the Air Force.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>16</i>	<i>18</i>
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Developer/Manufacturer

Bell Helicopter Textron, Fort Worth, TX
The Boeing Company, Philadelphia, PA

KC-130J

Description

The KC-130 is a versatile multi-engine, tactical aerial refueler/transport, which supports all six functions of Marine aviation. It is the only long-range assault support capability organic to the Marine Corps. The KC-130J with its increase in speed (+21 percent) and range (+35 percent), features an improved air-to-air refueling system and state-of-the-art flight station. The flight station includes two Head Up Displays (HUD's), night vision lighting, augmented crew station and fully integrated digital avionics architecture. An Allison AE 2100D3 propulsion system, with full authority digital electronic controls, Dowty R391 advanced technology six bladed propeller system, and 250 knot cargo ramp and door, complete the package that will provide the MAGTF commander with a state-of-the-art, multi-mission, tactical aerial refueler/transport well into the next century. The Marine Corps intends to replace its aging active fleet of KC-130F's, R's, and T's with the new KC-130J.

Operational Impact

The KC-130 provides both fixed-wing and helicopter tactical in-flight refueling, rapid ground refueling of aircraft or tactical vehicles, assault air transport of air landed or air delivered personnel, supplies and equipment, command and control augmentation, pathfinder, battlefield illumination, tactical aero-medical evacuation, and Tactical Recovery of Aircraft and Personnel (TRAP) support. This force multiplier is well suited to the mission needs of the forward deployed MAGTF. The

KC-130J will bring increased capability and mission flexibility to the planning table with its satellite communications system, survivability enhancements, night systems, enhanced rapid ground refueling, and improved aircraft systems.

Program Status

The KC-130J is a commercial -off-the-shelf aircraft currently in production. The total program buy for KC-130J is 79 aircraft for the Marine Corps. The initial delivery of the KC-130J is scheduled for April 2001.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>3</i>	<i>4</i>
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Developer/Manufacturer

Lockheed Martin

Offensive Air Support

STOVL Joint Strike Fighter (JSF)

Description

The STOVL JSF will be a single engine, stealthy, supersonic, strike-fighter aircraft capable of short takeoffs and vertical landings. It will combine the basing flexibility of the AV-8 with the multi-role capabilities, speed, and maneuverability of the F/A-18 to fulfill both the air-to-ground and air-to-air requirements of the Marine Corps. The aircraft is intended to have a very low RF and Infra Red signature, with superior capabilities over both of the aircraft it will replace (AV-8B, F/A-18A/C/D) in the areas of survivability, lethality, and supportability.

Operational Impact

The JSF provides a multi-mission offensive air support and an offensive/defensive anti-air capability. The JSF also provides the MAGTF with a platform capable of tactical air control and tactical reconnaissance. Additionally, the aircraft will be able to provide suppression of enemy air defenses. The requirements for this aircraft are focused on readiness, expeditionary capability, the combined-arms concept, and the conduct of OMFTS.

Program Status

The JSF is a Joint program with the Air Force, Navy, and Marine Corps. Presently the program is in the Concept Demonstration Phase, with two contractors, Boeing Aircraft Company and Lockheed Martin. Both companies have flown their Conventional Takeoff and Landing (CTOL) variants and are continuing development on the Short Takeoff and Vertical Landing (STOVL) variants. The Marine Corps anticipates first aircraft delivery in FY08 with IOC of the first JSF squadron in FY10. Total procurement for the Marine Corps will be 609 aircraft.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

- Boeing/Lockheed Martin
- Hughes/Westinghouse
- Pratt & Whitney/General Electric

AV-8B Harrier Remanufacture (Reman)

Description

The AV-8B Harrier is a single-seat, transonic attack aircraft. Its vertical/short take-off and landing (V/STOL) design gives it the capability to operate from a variety of land and sea-based platforms. The current Harrier II (plus) model incorporates an improved engine, night warfighting capabilities, and the APG-65 multi-mode radar. The remanufacture program will upgrade 72 older day-attack aircraft to the current radar/night-attack standard at approximately 80 percent of the cost of a new aircraft.

Operational Impact

The Marine Air-Ground Task Force (MAGTF) relies heavily on its organic aviation to offset limited artillery and tank assets and to provide fire support. The V/STOL capability of the AV-8B allows forward basing to facilitate timely close air support to Marine ground forces. The AV-8B operates from "L" Class ships, from rapidly constructed expeditionary airfields, from forward sites such as roads, and from smaller or damaged conventional airfields. The addition of night-attack and radar capabilities allows the Harrier to be responsive to the needs of the MAGTF at night and in adverse weather.

Program Status

The remanufacture of 74 aircraft is programmed through FY03.

Procurement Profile: FY01 FY02

Quantity: Reman 10 0

Developer/Manufacturer

Boeing/BAE



F/A-18A/B/C/D Hornet

Description

The F/A-18 Hornet is a twin-engine, supersonic, strike-fighter aircraft. It fulfills both the air-to-air and air-to-ground mission requirements and can operate from conventional airfields and aircraft carriers. The F/A-18Cs delivered since FY90 have increased night and marginal weather capability, including a color moving map display, night vision goggle-compatible lighting and a navigation forward-looking infrared (NAVFLIR) sensor. The two-seat version, F/A-18D, incorporates all warfighting capabilities of the F/A-18C and includes a tactical reconnaissance capability. This aerial reconnaissance capability, Advanced Tactical Air Reconnaissance System (ATARS), provides near real-time aerial imagery to the MAGTF and will deploy with four systems per VMFA (AW) squadron beginning in FY00.

Operational Impact

The F/A-18C provides modern multi-mission offensive and defensive anti-air capability and offensive air support. The F/A-18D provides the Marine Air-Ground Task Force (MAGTF) with a platform capable of tactical air control and reconnaissance while retaining the capabilities of the F/A-18C. Both aircraft provide powerful and flexible air support and suppression of enemy air defenses. The maintainability and multi-mission capabilities of the F/A-18 make it well suited to the needs of the MAGTF in an austere expeditionary environment.

Program Status

The Marine Corps has initiated the upgrade of 44 F/A-18A's (with a program objective of 76) to Lot XVII F/A-18C aircraft capability as well as digital communications and tactical data link. The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18C/D with digital communications, tactical data link, and tactical reconnaissance systems. This ensures that our F/A-18's remain viable and relevant until replaced by the STOVL Joint Strike Fighter (JSF).

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

The Boeing Company
Northrop Grumman
Hughes

Part 4 – Combat Service Support Element Program

The Combat Service Support Element (CSSE) provides many support functions to the Marine Air-Ground Task Force (MAGTF). It can operate from naval vessels or expeditionary bases ashore. CSSE can sustain forces and permit maximum flexibility in responding to crises.

The following programs will enhance the CSSE's ability to support the MAGTF:



Medium Tactical Vehicle Replacement (MTVR)

Description

The MTVR program replaces the aging M939/M809 5-ton trucks with a fleet of state-of-the-art, commercially based, medium trucks with greater mobility, lift, and reliability. The MTVR has an increased payload of 7.1 tons cross-country and 15 tons on hard surface roads and can simultaneously tow an 11 ton load. The MTVR has a 70 percent off road and 30 percent on road mission profile and is capable of sustained speeds of 30 mph cross-country. Commercial components include: 425 horse power electronically controlled engine; seven speed, continuous power, automatic transmission; 6-wheel independent suspension; anti-lock brakes; engine retarder (“jake brake”); automatic traction control; and central tire inflation.

Operational Impact

The user will benefit from the increased reliability and performance of a truck that is just as deployable as the current fleet of 5-ton trucks. The standard cargo variant’s weight of 28,000 pounds and reducible height of 98 inches make it internally transportable by KC-130 and externally by CH-53E.

Program Status

The MTVR program is currently in Low Rate Initial Production. Cargo variants will be fielded from FY01 through FY04. Wrecker and dump variants will be fielded during FY04 through FY05.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>2,012</i>	<i>1,946</i>
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Developer/Manufacturer

Oshkosh Truck Corporation, Oshkosh, WI



High Mobility Multipurpose Wheeled Vehicle A2 Series (HMMWVA2)

Description

The HMMWVA2 will replace the existing fleet of aging HMMWV's. The HMMWVA2 will sustain the fleet's current capabilities while improving safety, reliability, availability, maintenance, and durability. An evolutionary design, the HMMWVA2 incorporates a 15—year corrosion prevention package, fully independent suspension, electronically controlled automatic 4-speed transmission, an Environmental Protection Agency compliant 6.5 liter diesel engine, improved brakes, an increased payload capacity, an improved engine electrical start system, and other design improvements.

Operational Impact

Current HMMWVA2 replacement strategy will sustain operational capability while improving Reliability, Availability, Maintainability, and Durability (RAM-D), safety, and corrosion prevention in the light tactical vehicle fleet.

Program Status

The HMMWVA2 program is a Joint effort (US Army lead).

USMC procurement of the HMMWVA2 began in FY 98. IOC was achieved in FY 00.

Procurement Profile: FY01 FY02

Quantity: 2,,071 1,243

Developer/Manufacturer

AM General Corporation



Enhanced Reverse Osmosis Water Purification Unit (EROWPU)

Description

The EROWPU is capable of providing potable water from salt, brackish, and fresh water sources in expeditionary environments. The EROWPU is a state of the art technology unit capable of producing 1,200 to -1,500 gallons of water per hour (GPH). This system will replace the aging 600 GPH ROWPUs at a one to two ratio.

Operational Impact

Water production in an amphibious setting is particularly critical to Marine Corps operations. The EROWPU will be used in the purification of salt water in over 75 percent of its operations.... This capability provides the commander with options that will not tie- forces to specific locations or mandate reliance on host nation support.

Program Status

The current Authorized Acquisition Objective is 257 units. The program is currently funded for procurement during FY02 through -FY07 with initial fielding planned for FY03. The EROWPU is undergoing Army Production Qualification Testing (PQT), with results expected in FY01. Low Rate Initial Production (LRIP), followed by Initial Operational Test and Evaluation is scheduled for FY01. Contract award by the Marine Corps is planned for FY023.

Procurement Profile: FY01 FY02

Quantity: 0 17

Developer/Manufacturer

SFA Inc. Frederick Manufacturing Division, Frederick, MD



Aviation Refueling Capability (ARC)

Description

The ARC provides a mobile, aviation refueling capability to the Marine Aircraft Wing. The Aviation Refueling Capability procured through this program will be a 5,000 gallon, commercial tanker truck refueler, modified to incorporate USMC unique requirements, which and will be procured through the General Services Administration as a non-developmental item. This system will provide under and over wing aviation refueling, de-fueling, and line haul (internal to MAW) to the Marine Air Wing both at garrison air stations/fields and at expeditionary airfields.

Operational Impact

The ARC will provide the same basic capabilities as the M970 it replaces, but with several technological advancements. The prime mover for the off road system will be the LVS and MK18A1 thus enabling an improved ability to carry fuel cross- country to Forward Arming and Refueling Points.

Program Status

A field user evaluation and Milestone I/III decisions are expected in FY01. ARCs will be procured with FY01 PMC funding after a successful production decision.

Procurement Profile: FY01 FY02

Quantity: 100 0

Developer/Manufacturer

Developer — Isometrics, Inc., Reidsville, NC

The GSA contract has 4 awardees.



Extended Boom Forklift (EBFL) Replacement

Description

The EBFL replacement will provide the Marine Corps with a 10,000 pound capacity forklift truck that is capable of horizontally extending its fork boom to stuff and unstuff a standard 40 x 48 inch military pallet weighing up to 4,000 pounds to/from the opposite end of an International Organization for Standardization (ISO) 8 x 8 x 20- foot container, either on or off a trailer. This EBFL will be capable of operating over uneven and unprepared surfaces (rough terrain) to include sand, snow, and mud. The EBFL will be utilized for handling ammunition, cargo, and supplies weighing up to the forklifts rated capacity.

Operational Impact

Procurement of the new EBFL will ensure that the Marine Corps is able to accomplish its assigned mission and meet operational availability requirements. The MLULL10K forklifts will be replaced one for one. This will approach will result in minimal impact on the operating forces.

Program Status

The Milestone I/II decision is scheduled for early FY01.

Procurement Profile: FY01 FY02

Quantity: 42 61

Developer/Manufacturer

TBD



Tractor, Rubber Tired, Articulated Steering, Multi-Purpose (TRAM) Service Life Extension Program (SLEP) (TRAM SLEP)

Description

The Tractor Rubber-Tired Articulated Multipurpose (TRAM) Service Life Extension Program (SLEP) focuses on returning the TRAM to original performance specifications and extending its service life. TRAM is a diesel-powered, four-wheel drive, articulated steering tractor capable of operating in rough terrain and in 60 inches of water. The TRAM is outfitted with a multipurpose bucket and a 10,000 pound forklift. Each TRAM will be remanufactured using original equipment manufacture (OEM) parts and procedures. Minimal technology insertions will be applied and focus will be on increasing durability, reliability, and operational availability. TRAM attachments will also be incorporated into the SLEP process with the same focus on the use of OEM parts and manufacturing procedures. Attachments such as snowplow, snow blower, brush clearer and sweeper broom enhance its role as a combat multiplier.

Operational Impact

The TRAM SLEP will ensure the TRAM can accomplish its assigned mission and meet operational availability requirements through 2012 at reduced cost, thus supplying more efficient support. Additionally, it will allow units to focus their limited organic resources on other equipment, which in turn will enhance the unit's overall readiness posture. The SLEP process will begin with TRAMs currently held by the Marine Corps Logistics Bases. This approach will allow a one-for-one rotation with operating force units and reduce the operational impact. Delivery of finished TRAMs will be coordinated through each MEF which will further reduce operational impact by allowing each MEF to prioritize final delivery.

Program Status

A favorable Milestone I/III decision was achieved in FY00. Two prototype units have been completed and are currently being tested. Contract award and full-scale production are planned for FY01.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
<i>Quantity:</i>	119	122

Developer/Manufacturer

Davenport Works, John Deere Corporation, Davenport, IA

Lightweight Maintenance Enclosure (LME)

Description

The LME is a frame supported lightweight tent designed to provide units with a covered facility to conduct tactical maintenance procedures. It accommodates tracked vehicles, oversized-wheeled vehicles and ground support equipment. It provides protection from the debilitating effects of continuous environment exposure during maintenance/repair and provides blackout capability. The LME is a modular, expandable, frame supported, lightweight, quickly deployed, and highly mobile. It is a modification of the TEMPER tent with similar erect/strike procedures and uses some of the same components that will reduce both logistic burdens and training requirements.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>745</i>	<i>279</i>
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Operational Impact

The LME gives rapid deployed and forward maintenance elements added capability without sacrificing mobility and survivability due to its light weight and ease of erection/strike.

Program Status

The LME is a Congressional Mandated Program. It has entered the Production Fielding/Deployment and Operational Support Phase.

Developer/Manufacturer

Camel Manufacturing, Caryville, TN

M88A2 Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES)

Description

The M88A2 HERCULES is an armored, full-tracked, low-silhouette vehicle. It will replace the aging M88A1 tracked recovery vehicle as the sole heavy recovery asset in the Marine Corps. Improvements include increased armor protection, a more powerful engine, modified transmission, improved final drives and increased weight (to aid in towing stability), upgraded suspension, improved hydraulic system, new heavy-duty wench, and increased overhead lift capability. It is used for hoisting, winching, and towing operations for all vehicles up to 70 tons (63.49 metric tons). It is equipped to assist in repairing disabled vehicles under field conditions. The vehicle carries a crew of three: commander, operator, and mechanic/rigger.

Operational Impact

The additional capabilities of the M88A2 HERCULES will give the operating forces relief from the current limitations of the M88A1. One HERCULES can safely tow the M1A1 Tank. Currently, two M88A1s are required to tow the M1A1 because its weight creates an unsafe environment for recovery crew personnel. The ability to quickly and safely recover combat vehicles with the fewest assets possible will be a force multiplier.

Program Status

The program is currently in Phase III. An Acquisition Decision Memorandum was signed in FY00 authorizing the full procurement of 61 M88A2 HERCULES (FY00-FY05). A production contract was awarded for 27 HERCULES Recovery Vehicles with FY00 funding. A new contract will be negotiated for FY01 procurement of 17 vehicles with option years for an additional 8 in FY02 and 9 in FY03.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
Quantity:	17	8

Developer/Manufacturer

United Defense, Limited Partnership, York, PA

General Dynamics Land Systems, Warren, MI

Mobile Field Kitchen (MFK)

Description

The MFK, also known as the Rapid Deployment Kitchen (RDK), is a containerized kitchen that can be positioned forward with designated elements of the Marine Air-Ground Task Force (MAGTF). It will be capable of providing meals twice daily to 650 to 1,000 Marines. The MFK is part of the flexible feeding available to maneuver elements dispersed over a wide area. The system is equipped to provide storage, refrigeration and the essentials for all types of meal preparation. In addition to providing increased mobility, this system improves safety by utilizing a single oil burner to heat thermal fluid that is circulated to kitchen appliances. This new concept is similar to forced hot water home heating, but uses a food grade mineral oil instead of water and appliances instead of radiators.

Operational Impact

The Mobile Field Kitchen will provide maneuver elements with a remote feeding capability in preparing hot, nutritional meals. The MFK is part of the total field feeding program. The containerization provides flexibility to realign with the Force Service Support Group and the units they support. The total field feeding program will enhance unit moral, performance and health.

Program Status

Milestones I, II, and III are anticipated over the next three years with fielding to start in FY03.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>1</i>	<i>21</i>
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Developer/Manufacturer

TBD

Internally Transportable Vehicle (ITV)

Description

The ITV program is a USMC led, Joint program with the U.S. Special Operations Command to field a family of light vehicles supporting expeditionary maneuver. The ITV will provide a deployed Marine Air-Ground Task Force with a ground vehicle that is internally transportable in heavy lift rotary wing and tilt-rotor aircraft including the MV-22 and CV-22. The vehicle will serve primarily as a high mobility weapons platform to support a variety of operations to provide ground units equal or greater mobility than the Marine Air-Ground Task Force (MAGTF) maneuver elements they support, thereby enhancing their mission performance and survivability. The family of vehicles will provide Special Operation Forces with a ground mobility platform to support special reconnaissance, direct action, unconventional warfare, foreign internal defense, counter-terrorism, personnel recovery, and anti-terrorism. The ITV will possess land mobility equal to or greater than other vehicles in the MAGTF. It will mount and employ several different types of weapons (M-2, Mk-19, TOW) and carry a crew of three to four Marines.

Operational Impact

The ITV family of vehicles has the mission to provide an internally transportable, light, tactical wheeled vehicle for heavy weapons employment, command and control, troop transport, light cargo transport, and ambulance duty throughout all areas of the battlefield and mission areas. All vehicles will be built off a common chassis and will be fitted with Mission Role Kits. The Light Strike Vehicle, as a variant of the ITV family, replaces the Fast Attack Vehicle (FAV) and Interim Fast Attack Vehicle (IFAV). Internal transport is critical, especially for the MV-22, so as not to decrease in-flight speed and maneuvering envelope. The ITV will be used across all spectrums of employment and in all environments.

Program Status

The ITV Program is in the System Demonstration phase of acquisition and is following a Non-Developmental Item procurement strategy. A competitive procurement recently resulted in the award of two contracts, with each contractor delivering vehicles for technical and operational assessments. Competitive selection to a single winner, followed by Operational Test and Evaluation and initial purchase of vehicles is planned for FY02. The Acquisition Objective is for 2,675 ITVs for the USMC, with Initial Operational Capability of the Light Strike/Weapons Carrier variant planned for FY03.

Procurement Profile: FY01

Quantity: 0

FY02

21

Developer/Manufacturer

FLYER FCM LLC and AVS Inc. have been selected for the competitive phase of the program.

CSSE Shared Data Environment (CSSE SDE/Data Warehousing)

Description

The CSSE SDE is a cornerstone concept of the Integrated Logistics Capability. It will incorporate data warehousing technologies and products to provide one-stop shopping for data supporting the decision making process of the Combat Service Support Element/Supporting Establishment (CSSE/SE). Through the CSSE SDE the appropriate data will be defined, indexed, acquired, transformed, integrated, and made accessible to authorized users — persons, organizations, and applications. Leveraging data in the CSSE SDE, Decision Support Tools (DST) will be defined, designed, and acquired to fulfill functional requirements for command and control, managerial analysis, logistics modeling and simulation, and other appropriate decision support.

Operational Impact

The data warehousing processes embodied in the CSSE SDE will stage logistics data and integrate On-Line Analytical Processing (OLAP) and DST to enable Command and Control (C2), situational awareness, and total asset visibility at all levels of command, from the Commander-in-Chief (CINC) to the Company Commander. The establishment of the CSSE SDE will eliminate the need for individual applications to perform these tasks for themselves and contribute to a more cost-effective, efficient application development environment.

Program Status

CSSE Shared Data Environment is currently in Phase 0. Milestone I is anticipated in FY01.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD

Part 5 – Other Support To The MAGTF

The programs, enhancements, and systems in this section provide other support to the Marine Air-Ground Task Force (MAGTF) in accomplishing their mission. They are not necessarily within the realm of the Command Element, The Ground Combat Element, the Air Combat Element or the Combat Service Support Element, yet could be used with one or all of those elements or for training only depending on the situation.

Many of these efforts are in the Nuclear, Biological and Chemical (NBC) defense program where the Marine Corps is pursuing a number of enhancements that will increase the effectiveness of personnel or unit's capability within the NBC environment. Over the past decade there has been an increase in the proliferation of chemical and biological agents. The Marine Corps must continue its efforts in developing technologies and doctrines in order to defend themselves and continue to operate in an NBC environment.

Additionally, the development of basic individual protective measures, combined with challenging individual and collective sustainment training is essential for survival.. Realistic training systems, standards-based training and performance-oriented training are used to enhance combat readiness. The Marine Corps is continuing to explore and field a number of new systems and simulators that will contribute significantly to training effectiveness while reducing overall training costs.

Whether through NBC enhancements, training or other programs the following efforts directly or indirectly support the MAGTF in it's mission.



Nuclear, Biological and Chemical (NBC) Defense

Joint Service Lightweight Nuclear, Biological, Chemical Reconnaissance System (JSLNBCRS)

Description

The JSLNBCRS will detect, collect, correlate, and disseminate Nuclear, Biological and Chemical (NBC) and toxic industrial hazard information, and mark contaminated areas in support of Marine Corps Expeditionary Forces, U.S. Army Light Forces, and U.S. Air Force Tactical Forces. It consists of a Base Vehicle (BV) and an Equipment Suite (ES) of on-board NBC and toxic industrial chemical detectors, communications and analysis equipment, a meteorological (MET) system, and a position-locating device. All components interface through a microprocessor based Computer Data Processing Unit (CDPU).

Operational Impact

The JSLNBCRS will be employed by Marine Corps forces in areas where it is reasonable to expect that NBC weapons and toxic industrial chemicals will be used against friendly forces. In the forward combat area the JSLNBCRS will be integrated into the overall reconnaissance and surveillance effort to either confirm or deny contaminated areas. In the rear areas it will be used to monitor main supply routes, logistics bases, airfields, ports, and key command and control centers for NBC hazards. The system will also support other hazard assessment missions as necessary.

Introduction of the JSLNBCRS eliminates/reduces deficiencies in current systems by providing a common platform, that is more readily transportable, using strategic and intra-theater lift capabilities.

Program Status

The program has successfully completed the Program Definition and Risk Reduction acquisition phase and is awaiting its Milestone II decision. Developmental Testing was completed in early FY01.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
<i>Quantity:</i>	45	52

Developer/Manufacturer

TRW Incorporated; Carson, CA

NBC Joint Warning and Reporting Network (JWARN)

Description

JWARN will provide Joint Forces with a comprehensive analysis and response capability to minimize the effects of hostile Nuclear, Biological, and Chemical (NBC) attacks or accidents/incidents. It will provide the operational capability to employ NBC warning technology which will collect, analyze, identify, locate, and report and disseminate NBC threats.

The JWARN program is a planned series of blocks. . Block I is the acquisition and fielding of Commercial Off The Shelf and Government Off The Shelf software to standardize NBC warning and reporting throughout the services. Block II will provide the total JWARN capability by integrating detector systems and NBC information management software modules into the services' Command, Control, Communications, Computers, Intelligence and Information (C4I2) systems. JWARN Block III will update the software to work with the next generation of detectors and upgrades to C4I2 systems.

Operational Impact

JWARN will accelerate the warfighter's response to an enemy NBC attack by automating manual systems. and providing a comprehensive analysis and response capability.

Program Status

JWARN is a J joint program lead by the Marine Corps with full service participation from the Army, Navy, and Air Force. Block I is being fielded.

The Request for Proposal for Block II for RDT&E EMD closed, and oral presentations and source selection were held in FY00. The technical, past performance and cost evaluations have been completed on all proposals. Contract award has been delayed from its scheduled FY00 date pending MS II decision. Milestone II is expected in FY01 and EMD contract award in FY02.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
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<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

BRUHN New Tech, Inc., Columbia, MD

Automated Chemical Agent Detector Alarm (ACADA)

Description

The ACADA is a man-portable chemical warfare agent detection system, which detects the presence or absence of nerve and blister agents. The ACADA offers improved sensitivity, response times and interference rejection as well as concurrent nerve and blister agent detection capability. The ACADA functions as an air-monitoring device under all environmental conditions and within mobile and stationary, standard wheeled and tracked tactical vehicles, and collective protection shelters. The ACADA sounds an alarm when the quantity of chemical agent exceeds defined limits and displays information on the chemical agents(s) detected. The ACADA has a standard communication interface to support battlefield automation systems. The XM279 Surface Sampler Probe is an auxiliary component to the ACADA. The XM279 will include monitoring for Chemical Warfare Agents (CWA) deposited on various surfaces and terrain and transporting a vapor to the ACADA for analysis. It is developed as part of a Pre-Planned Product Improvement to the ACADA.

Operational Impact

The ACADA is capable of manned or unmanned air monitoring in ambient atmosphere in either a man portable, mobile, or stationary configuration and can be integrated as a component of a battlefield chemical defense system. It can be employed in the open or in collective protection shelters, and on wheeled and tracked vehicles including the Nuclear, Biological, and Chemical reconnaissance system. The ACADA is capable of being employed remotely to provide early warning of approaching hazardous vapor clouds. Knowledge of the actual location of the chemical agent cloud assists commanders in their decision-making processes and employment actions. The system will detect and monitor the presence of hazardous agents, provide an audible and visual alarm and provide essential data to the affected unit. The system will operate on battery and/or line power and will interface with automated battlefield communications systems (e.g. JWARN).

Program Status

Approximately half 650 of the AO of 695 has been delivered and with a fielding decision was approved in early FY01. anticipated.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>3220</i>	<i>0</i>
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Developer/Manufacturer

Graseby Dynamics Limited, UK

Joint Biological Point Detector System (JBPDS)

Description

The JBPDS program is an integration of the Army, Navy, and Air Force Service specific development programs. It provides near real time biological agent detection, warning, and identification and can also collect and preserve samples for further analysis. The system is self contained, portable, and requires minimal operations and maintenance support. The suite consists of complementary detector, collector, and identifier technologies and will, in less than 20 minutes, will be capable of detecting biological warfare (BW) agents in quantities below the amount needed to impact combat effectiveness. in less than 20 minutes. It provides a common detection capability for Joint interoperability that is mountable on military vehicles.

The JBPDS will: increase the number of agents that can be identified; decrease detection time; increase detection sensitivity; provide automated knowledge-based, near-real-time detection and identification; and, provide a first time point detection capability to the Marine Corps. An evolutionary component/suite upgrade acquisition approach will be used to provide the Services a common point detection capability.

Operational Impact

The JBPDS will enhance the survivability of U.S. Forces. It will provide commanders with near-real-time biological agent detection and identification, as well as sample collection capabilities. The primary purpose of the JBPDS will be to limit the effects of biological agent attacks that have the potential for catastrophic effects to U.S. Forces. It may also assist medical personnel in determining effective preventive measures, prophylaxis, and the appropriate treatment if exposure occurs. Detection and identification of biological agents within the theater of operations will increase the effectiveness of U.S. Forces by limiting adverse impacts on operations and logistical systems. The JBPDS will provide the Marine Corps the capability for point detection and identification of airborne BW agents.

Program Status

Operational Assessment for nine systems (four man portable, four shelter, and one shipboard) is expected in FY02. IOT&E and a production Milestone III are scheduled for FY03.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>9</i>	<i>16</i>
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Developer/Manufacturer

Intellitec, with Battelle as a subcontractor, is the contractor for the first phase of LRIP. There will be separate solicitations for the second phase of Low Rate of Initial Production consisting of sixteen systems and production.

Training System And Devices

Indoor Simulated Marksmanship Trainer-Enhanced (ISMT-E)

Description

The ISMT-E is an interactive training system designed to support marksmanship skills in a classroom setting. The ISMT-E will provide training in marksmanship skills for the M16A2, M4, M9, M249, M240G, Mk19, M2, AT4, SMAW, M203, MP5, SRAW/Predator, shotgun, and mortars. Marines fire laser fitted infantry weapon simulators engaging target sets projected on a large screen display employing three-dimensional graphics simulation technology.

Operational Impact

The ISMT-E will replace the current video-based ISMT system at selected units. The current ISMT system has four firing positions with the Infantry Squad Trainer (IST) (the expanded version of the ISMT) providing 12 firing positions. The ISMT-E will add a fifth firing position and the IST-E will accommodate up to 15 shooters. These systems present trainees with target sets in a variety of realistic scenarios that exercise marksmanship and weapons skills, small unit proficiency, and shoot/no shoot judgment. Forward Observer (FO) spotting and firing with night vision devices can also be performed. ISMT-E will enable individual Marines and small units to train in a distributed interactive simulation (DIS)/high level architecture (HLA) environment by providing the ability to interface with other ground training simulators and systems such as the Combat Vehicle Appended Trainer (CVAT).

Program Status

ISMT-E will be procured in FY01.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
Quantity: ISMT-E	22	TBD
IST-E	25	TBD

Developer/Manufacturer

TBD

Multiple Integrated Laser Engagement System (MILES) 2000

Description

The MILES 2000 is the next generation of Tactical Engagement Simulation Systems. MILES 2000 is the planned replacement for the currently fielded, basic MILES in use since the mid-1980's. MILES 2000 provides the Marine Corps with a family of low-power, eye-safe, lasers that simulate the direct fire characteristics of weapons organic to a reinforced infantry battalion. MILES 2000 enhances the tactical training environment by closely replicating infantry battalion direct fire ranges, capabilities, limitations, and ammunition characteristics.

Operational Impact

MILES 2000 will provide the capability to conduct realistic reinforced infantry battalion force-on-force engagements. Additional enhancements will provide longer battery life, lighter weight, reduced MILES equipment profiles and an after action review (AAR) feedback capability. A MILES Target Interface Device (MTID) will be available that will make MILES 2000 interoperable with currently fielded Remoted Engagement Target Systems and Portable Infantry Target Systems.

Program Status

IOC and FOC are scheduled for FY01.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
<i>Quantity: Bn Sets</i>	<i>10</i>	<i>0</i>

Developer/Manufacturer

Cubic Defense Systems, San Diego, CA

Combat Vehicle Appended Trainer (CVAT)

Description

The CVAT is a family of crew served, deployable, mission simulators that are appended to the Light Armored Vehicle and M1A1 Tank. CVAT provides high-fidelity, deployable, precision gunnery and networked tactical training that will allow combat vehicles to satisfy standardized, individual, collective and joint training objectives.

Operational Impact

The CVAT system design will support training in garrison, field, forward and deployed environments. The CVAT system fulfills the requirement for a deployable, appended trainer to the M1A1 and LAV operational platforms. CVAT provides collective task training for familiarization, proficiency, sustainment and force-on-force training at the individual, crew, section, and platoon levels.

Program Status

IOC is planned for FY02 with FOC in FY04.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>45</i>	<i>18</i>
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Developer/Manufacturer

TBD

Remoted Engagement Target System (RETS)

Description

The Remoted Engagement Target System (RETS) is an automated system of pop-up stationary and moving targets for infantry, armor and anti-armor training. The system offers computer-driven programmed tactical scenarios or can be operated in a manual mode with group or individual targets raised on command.

Operational Impact

RETS will significantly enhance the capability to train individual Marines, crew-served weapons teams, small units and combat vehicle crews in the employment of their weapon systems under the most realistic combat conditions possible. Because RETS is an ongoing program it has evolved through the past several years. New Generation Army Targets (NGATS) and Immediate NGATS have become the latest standards for RETS ranges and are expected to be the principal direction for the near future.

Program Status

Nineteen RETS ranges of the total acquisition objective of forty have been fielded and three are funded for construction. FOC is scheduled for FY05.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>3</i>
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Developer/Manufacturer

Lockheed Martin, Huntsville, AL

Closed Loop Artillery Simulation System (CLASS)

Description

The CLASS supports training for artillery personnel and batteries in all types of artillery missions. CLASS provides the capability for closed loop, integrated training in the conduct of observed and unobserved fire missions. CLASS allows the Forward Observer (FO), Fire Direction Center (FDC) and howitzer section personnel to simultaneously train in a closed loop and stand-alone environment without the use of live ammunition. CLASS enhances the capability of our forces to destroy, degrade and delay enemy forces by providing an effective means for enhancing battery proficiency without the risk and expense of live fire training.

Operational Impact

Artillery gunnery team training is currently conducted through the use of live fire exercises that are which is expensive in terms of time, range usage, ammunition, fuel, and maintenance. CLASS allows artillery batteries to train in garrison and while deployed without these costs thus achieving a level of proficiency that will make vital but rare live fire training more effective. Additionally, CLASS will allow training with simulated munitions that are not normally fired in training, such as FASCAM and Copperhead. The FO module of CLASS is also a possible replacement for the obsolete Training Set, Fire Observation (TSFO).

Program Status

Class is currently in Phase 0, with a planned Milestone I/II decision in FY02. IOC is scheduled for FY04 with FOC in FY07.

Procurement Profile: FY01 FY02

Quantity:	0	0
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Developer/Manufacturer

TBD

Joint Simulation System (JSIMS)

Description

The JSIMS, when fully developed, will be the flagship program of the next generation of constructive models. JSIMS is a single, seamlessly integrated, simulation environment that includes a core of common and Joint representations and services, a run-time hardware and software infrastructure, and interfaces-augmented by representations of air, space, land and maritime warfare functionality. These can be composed to create a simulation capability to support Joint or Service training, rehearsal, or education objectives. JSIMS will provide not only an improved capability for inter-Service operability, but also an enhanced Joint battle staff training capability for the warfighting Commander-in-Chiefs. When fully developed it will support all warfare domains in all phases of operations (mobilization, deployment, employment, sustainment, and redeployment).

Operational Impact

JSIMS will be the premier constructive modeling and simulation system within DoD for conducting Joint and Service level staff training. It will replace the current Marine Air-Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) system and the outdated Joint Training Confederation that provide only minimal training.

Program Status

The Joint Warfighting Center is designated as the requirements sponsor for this joint program. The Army has been designated the Developmental Agent for Land Domain, the Navy for Maritime Domain, the Air Force for Air/Space Domain, and the Defense Intelligence Agency for Intelligence.

The program is currently in Milestone II. Multiple phases of software builds are underway simultaneously because it is an evolutionary software development

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>0</i>	<i>0</i>
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Developer/Manufacturer

Visicom Labs, Inc., San Diego, CA

Distance Learning (DL) Program

Description

DL is a Marine Corps-wide Defense Information Infrastructure compatible, distributed intranet that allows Marines to receive individual and formal training via the appropriate interactive media, when and where the learning is needed. DL consists of commercial off-the-shelf (COTS) hardware and software that runs on the Marine Corps Enterprise Network (MCEN) or existing Base Telecommunications Infrastructure. DL hardware consists of the Training and Education Point of Presence Server Suites to store the DL courseware; Learning Resources Centers (LRC), Deployable LRCs, and Video Tele-training Centers classrooms for accessing DL products.

The DL program is an ACAT III-IT Total Force program.

Operational Impact

Distance Learning allows each Marine to keep pace with our rapidly expanding educational and training needs. It also provides the commander a better trained Marine and increases personnel availability, both of which add to unit readiness.

Program Status

The DL program is post Milestone III, with IOC in FY01 and FOC in FY 05.

<i>Procurement Profile:</i>	<i>FY01</i>	<i>FY02</i>
Quantity: TEPOPs	9	5
LRCs	18	14

Developer/Manufacturer

Various COTS

Other

Forward Resuscitative Surgery System (FRSS)

Description

The FRSS is a flexible, resuscitative, surgery capability that can be quickly configured and erected to support any tactical medical situation ashore in a forward combat environment. It operates in a free standing or connected modular configuration. It is a lightweight, highly mobile package that transforms into a supplied surgical cockpit and/or casement. The FRSS is capable of providing trauma management, resuscitative surgery, ancillary services, and temporary patient holding.

Operational Impact

The FRSS is packaged to provide immediate, medical, life saving capabilities to support Marine Air-Ground Task Force (MAGTF) operations on a continuous 24-hour basis, with a minimum mission duration of 48 hours without resupply. Medical personnel are tasked organized from the Medical Battalion's Surgical Companies and supporting units.

Program Status

The FRSS program is currently in the Program Definition and Risk Reduction Phase with Milestone III anticipated by FY02.

Procurement Profile: FY01 FY02

Quantity: 1 2

Developer/Manufacturer

Current plans for the shelter system are to utilize the Marine Corps standard shelter (MGPTS- medium).. Medical equipment and supplies are anticipated to be either commercial off-the-shelf items, or from the Marine Corps' inventory.

Digital Radiography (DR)

Description

DR is advanced imaging technology that provides a digital array replacement for conventional X-ray systems. DR captures X-ray images in digital format using an optic digitizing device. The digital data generated is collected by a microcomputer and transmitted to an imaging workstation (display device) that reconstructs the information within minutes. The image can then be transferred to a read/write CD Rom. This allows the patient to be transferred within the Medical Battalion and the X-ray images can be read at remote laptop viewing stations. The digitized data image can also be sent via a network for permanent storage.

Operational Impact

DR is a capability that is the entry point for teleradiology capturing digital images in forward locations. It will enable the transfer of patient data via LAN, radio frequency or satellite transmission to the next level of care. The DR is lightweight and mobile, decreasing the weight, cube and logistical support previously required. DR will eliminate the need for X-ray processing chemicals and safety problems associated with the chemicals.

Program Status

Digital Radiography is in Phase 0, Concept Exploration. It is being assessed to determine if the program should be classified as an abbreviated acquisition program.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>2</i>	<i>28</i>
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Developer/Manufacturer

X-Ray Machine: MinXray, Northbrook, IL

Image Digitizer: Lumisys, Sunnyvale, CA

Ruggedized Container and Mobility Cart: North Coast Outfitters Ltd, Hampton Bays, NY

Integrated Infantry Combat System (IICS)

Description

IICS will be an integrated, modular, combat system for mounted and dismounted infantry Marines. It will enhance the Marine's battlefield capabilities through the development and integration of a wide range of capability enhancing components and technologies into a totally integrated combat system. The system's modular components will likely include an improved lethality system, improved individual survivability, input/output interfaces, protective clothing, communications, and target acquisition technologies.

The IICS will equip a Marine infantryman for combat by viewing the Marine rifle squad as a system, vice a conglomeration of individual components. This will be accomplished by adopting a more mature version of the Army's Land Warrior system or a similar system modified to suit the Marine Corps specific needs.

The integrated capabilities of the IICS include a modular individual weapon, or a system of weapons, capable of mounting a thermal sight, Infra Red aiming device and other ancillary equipment to improve the lethality of the rifle squad. It will be a helmet-mounted system that includes image fusion capability and command and control interfaces, battlefield eye protection and input/output devices that interface with the command, control, and communications system. It will have an advanced load carrying capability, fully integrated with the components of the combat system, and an integrated chemical/biological protective garment to include gloves, boots, and mask. IICS will also provide a radio system with local area network (squad), wide area network (GCE), and over the horizon Marine Air-Ground Task Force (MAGTF) capabilities.

Operational Impact

IICS will provide the individual Marine infantryman greater lethality, survivability, mobility, C2 and sustainability by exploiting emerging technology and integrating various modular subsystem capabilities into a cohesive combat system.

Program Status

The IICS Program is currently in the Concept Exploration phase of its development.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD

Clear Facilities (CFAC)

Description

The CFAC program is intended to develop a suite of equipment that will assist commanders in determining the nature of the threat within a facility. Concurrently, it will provide a suite of options to non-lethally clear buildings. This suite of potential solutions will also be able to detect sensors and lethal items within the facility and provide a non-threatening or non-destructive means to remove or disable them.

Operational Impact

This program will reduce the time and effort to clear facilities without having to induce casualties or expend human and equipment resources. It is intended that this CEP will be accomplished through exploring methods to clear the structures of personnel threats, material, technological and equipment threats.

Program Status

The program received Milestone 0 approval and a schedule is being developed.

Procurement Profile: FY01 FY02

Quantity: 0 0

Developer/Manufacturer

TBD

SAN ANTONIO Class LPD-17

Description

The SAN ANTONIO Class LPD-17 is the newest amphibious ship class designed to provide the large lift capacity necessary for the rapid build-up of combat power ashore. In addition, it significantly enhances the operational flexibility of a three ship Amphibious Ready Group. It will carry about 700 Marines, have a vehicle stowage capacity of 25,000 square feet, a cargo stowage capacity of 27,000 cubic feet, a well deck sized for two Landing Crafts, Air Cushions, and a flight deck capable of simultaneous operation of two CH-53E Super Stallions, two MV-22 Osprey tilt-rotor aircraft, or four CH-46 Sea Knight helicopters. This ship class is optimized for size, flexibility, and economy.

Operational Impact

Current emphasis on regional contingencies and rapid deployment by naval expeditionary forces increases the importance of amphibious lift assets. The LPD-17 class is required to overcome shortfalls of amphibious lift assets caused by the decommissioning of aging LPDs, LSTs, LHAs, and LSDs. When construction is completed, the 12 SAN ANTONIO Class LPDs will provide the Navy the additional amphibious lift required to achieve the fiscally constrained 2.5 Marine Expeditionary Brigade (MEB) Assault Echelon lift requirement while also providing the lift necessary to meet crisis response and forward presence requirements.

Program Status

The 1990 DoN Integrated Amphibious Operations and Marine Corps Air Support Requirements Study reaffirmed the SAN ANTONIO Class requirement. The Mission Needs Statement was validated in September 1990 and the DAB approved Milestone 0 in November 1990. Preliminary design work was completed in November 1993 and was followed by commencement of contract design. The contract for the lead ship was awarded in December 1996. Initial delivery is scheduled for FY03.

Procurement Profile: FY 01 FY02

<i>Funded</i>	<i>0</i>	<i>2</i>
<i>Deliver</i>	<i>0</i>	<i>0</i>

Developer/Manufacturer

Avondale Industries
Bath Iron Works

Family of Tactical Soft Shelters (FTSS)

Description

The Family of Tactical Soft Shelters (FTSS) are state-of-the-art soft shelters that replace current Command Post (CP) and General Purpose (GP) (Medium) tents. The FTSS utilizes modular, expandable construction technology to produce shelters that are mobile, durable, terrain-adaptable, all-weather, quick to erect and strike, waterproof, and have connectivity/interoperability with tactical vehicles and ancillary equipment (power, HVAC, and camouflage)

Operational Impact

These shelters will be easy to transport by Marine Corps tactical cargo vehicles enhancing our ability to conduct maneuver warfare. They will be modular, lightweight and durable. The FTSS will environmentally protect those in the following functions: command and control, medical, dental, administrative, supply, maintenance, billeting, storage, and messing. The FTSS will provide a blackout capability and reduced IR.

Program Status

Through user evaluations the Marine Corps decided to adopt the U.S. Army's Modular Command Post Shelter (MCPS) and the new Modular General Purpose Tent System (MGPTS, Medium) for the FTSS program. In FY00 Milestone III was granted. The MCPS and MGPTS will be horizontally fielded throughout the Marine Corps and the Marine Corps Reserve.

Procurement Profile: FY01 FY02

<i>Quantity:</i>	<i>1657</i>	<i>952</i>
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Developer/Manufacturer

MGPTS — Johnson Worldwide Associates (Eureka)

MCPS — Camel Manufacturing Company

Joint Military Intelligence Program (JMIP)

Description

The JMIP, established in 1995, provides oversight of selected DoD intelligence programs and resources under the Deputy Secretary of Defense. The JMIP consists of the following four component programs:

- ❑ Defense Cryptologic Program (DCP)
- ❑ Defense Imagery and Mapping Program (DIMAP)
- ❑ Defense Joint Counterintelligence Program (DJCIP)
- ❑ Defense General Intelligence and Applications Program (DGIAP)
and the following DGIAP sub-component programs:
 - Defense Airborne Reconnaissance Program (DARP)
 - Defense Intelligence Counter-drug Program (DICP)
 - Defense Intelligence Tactical Program (DITP)
 - Defense Space Reconnaissance Program (DSRP)
 - Defense Intelligence Special Technology Program (DISTP)

The JMIP funds the RDT&E and procurement associated with the Marine Corps Joint Service Imagery Processing System (JSIPS) National Input Segment (NIS) at Camp Pendleton, CA, and the Common Imagery Ground/Surface System (CIGSS) TEG development in the DARP. The NIS, operated by the Marine Corps Imagery Support Unit (MCISU), became fully operational in 1996. The DARP also funds the Unmanned Aerial Vehicles (UAV) System RDT&E and procurement to include the Marine Corps Pioneer and the Tactical UAV programs. Although funded by the Department of the Navy, the DARP has provided the RDT&E and procurement dollars for the Advanced Tactical Air Reconnaissance System (ATARS). The Marine Corps will receive 19 ATARS for use on the F/A-18D aircraft.

DCP RDT&E funding has led to marked improvements in the tactical Signals Intelligence collection and processing capabilities of the Marine Corps. DCP investment led to fielding and/or improvements to the Team Portable Collection System (TPCS), Technical Control and Analysis Center (TCAC), and Mobile Electronic Warfare Support System (MEWSS). Under the Radio Battalion Modernization and Concept Exploration project, DCP RDT&E investment improved radio direction-finding capability, special intelligence communications, and signal intercept capability.

JMIP support to the Marine Corps also provides funding for Marine Corps Reserve personnel augmentation to support CINCs, CINC-supported exercises and activities, and other Joint production and exercise functions.

National Foreign Intelligence Program (NFIP)

Description

The NFIP is a funding program that encompasses the majority of the national and DoD intelligence agencies. Intended to provide centralized control and oversight of national intelligence funding, it is composed of 12 programs and the Central Intelligence Agency Retirement and Disability System (CIARDS). The Marine Corps participates directly in three component programs overseen by the Director of Central Intelligence sponsored NFIP:

Consolidated Cryptologic Program (CCP) — The CCP provides funding for Marine Corps participation in the United States Cryptologic System. The Marine Support Battalion, working in concert with the National Security Agency and the Naval Security Group, supports the worldwide SIGINT and INFOSEC needs of national decision-makers and operational commanders. These Marines routinely augment Marine Air-Ground Task Force (MAGTF)s in direct support of expeditionary forces, such as in Bosnia and Kosovo, and in Joint exercises.

General Defense Intelligence Program (GDIP) — The GDIP funds Service and Defense Intelligence Agency (DIA) distributed intelligence production functions of the Marine Corps Intelligence Activity (MCIA). It also provides for Marine Corps participation in the Defense HUMINT Service (DHS), on CINC staffs, and in the Joint Intelligence/Joint Analysis Centers (JIC/JAC) at USPACOM, USJFCOM, USSOUTHCOM, USCENTCOM, and USEUCOM. GDIP provides augmentation pay for Marine Corps Reserve personnel performing intelligence duties at the national and theater level. GDIP funds have provided over 5,874 man-days of Reserve intelligence support in FY00 and \$920K is slated for GDIP during FY01.

Foreign Counterintelligence Program (FCIP) — The FCIP provides for Marine Corps participation in DoN counterintelligence activities through the Naval Criminal Investigative Service.

The NFIP allocates resources to support reimbursable or direct costs and compensation for over 900 Marines and Marine Corps civilian personnel as well as fund-limited operations and maintenance activities.



Editor's Note: At the time "Concepts and Issues" went to press, the FY2002 Department of Defense budget had not been finalized. The following summarizes the resource themes pursued by the Marine Corps in the development of the FY02 Defense Budget. The manner in which these challenges are met will be determined upon completion of the Administration's Defense Strategy Review. The Marine Corps FY2002 Budget will be adjusted, as required, to reflect any changes in mission resulting from that review. The charts and graphs normally included in this chapter will be updated at that time and may be viewed in the near future on our website.

Chapter 5

Fiscal Resource Overview

The FY 2002 budget continues to emphasize the primacy of the Marine Air Ground Task Forces (MAGTFs) and balances our resources across the four pillars upon which readiness is built. These pillars are: Marines and their families, legacy systems, modernization, and infrastructure. Properly funding these four pillars is absolutely essential to ensure we remain ready, relevant and capable as we enter the 21st century.

Marines and their families are our first priority and our greatest success story. We continue to dedicate resources to attract and retain quality young men and women. Our individual and unit training continue to be demanding and rewarding enough to build an esprit de corps that is unequalled in any other service. Recent quality of life improvements in pay and retirement allowances, as well as health care benefits, will help us retain our highly qualified Marines.

Our second pillar of readiness, our legacy systems, is key to near-term readiness. This is the equipment, aircraft, and weapons systems currently in the inventory of our MAGTFs. Many of these systems have reached or exceeded the end of their useful service lives. We are facing block obsolescence in our major ground and aviation equipment. The costs to maintain these systems – in terms of both dollars and man-hours – continues to climb. We have taken maximum advantage of Service Life Extension Programs, which enable us to marginally improve our legacy systems, but these programs cannot fulfill our modernization needs. Our reliance on aging equipment negatively impacts our capabilities in many ways – the buildup of combat power ashore is delayed and more predictable, our ability to conduct in-stride breaching of mines and obstacles is limited, and the range of our artillery must keep pace with the improved mobility of our forces and the defensive technologies available to potential enemies. Additionally, the countless hours of maintenance on our aging equipment directly impacts the quality of life of our Marines. We can no longer afford to delay modernization of our force.

Modernization of our ground equipment and aircraft has been one of the principal bill payers for near-term readiness for most of the last decade. During the last eight years of the nineties, Marine Corps ground and aviation equipment funding was well below the “steady state” level. This extended period of underfunding has driven the recovery rate of modernization of our equipment and aircraft above the historical, “steady state” level. It will take a sustained period of increased funding to recover from years of underfunding. We have a balanced, viable plan to field new and improved ground and aviation equipment, such as the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV A2), the Advanced Amphibious Assault Vehicle (AAAV), the High Mobility Artillery Rocket System (HIMARS), the lightweight 155mm howitzer, the MV-22, KC-130J, AH-1Z/UH-1Y, and the JSF, however, we must accelerate the pace at which we do so.

Our infrastructure, Marine Corps bases and stations, is the platform for developing, training, and maintaining our Marines. It also serves as the centerpiece for our quality of life programs. As with equipment modernization, infrastructure (Family Housing, Maintenance of Real Property, and Military Construction) has long been a bill-payer for near-term readiness. With regard to family housing, our goal is the elimination of inadequate units by fiscal year 2010. While we are on schedule to revitalize our current inventory by FY10, we are unable to address our current deficiency. In the last several years we have been able to arrest our previously growing backlog of maintenance and repair (BMAR) at approximately \$650 million,

however, this is well short of our goal to reduce BMAR to \$100 million by FY10. Restoration of our deteriorating infrastructure is not limited to reducing our BMAR, but includes Military Construction as well. Fiscal constraints have forced difficult choices that result in funding only our most critical construction requirements. Although we have made some progress toward reducing our military construction replacement cycle over the last few years, we lag far behind the industry standard. The state of our infrastructure, like our legacy systems, affects the quality of life of our Marines and their families. It does and will continue to influence training and retention. In short, an adequate infrastructure is a key to the survival of our “all recruited force.”

Today, the Marine Corps is capable of executing its peacetime and wartime missions with the probability of success that the Nation expects today. While we have made significant progress toward solving some of our most pressing needs, solutions to our problems will not be achieved overnight. Meeting tomorrow’s challenges and maintaining the “expeditionary force in readiness” our nation requires will take a sustained period of increased investment in equipment modernization and infrastructure.

Fiscal Trends

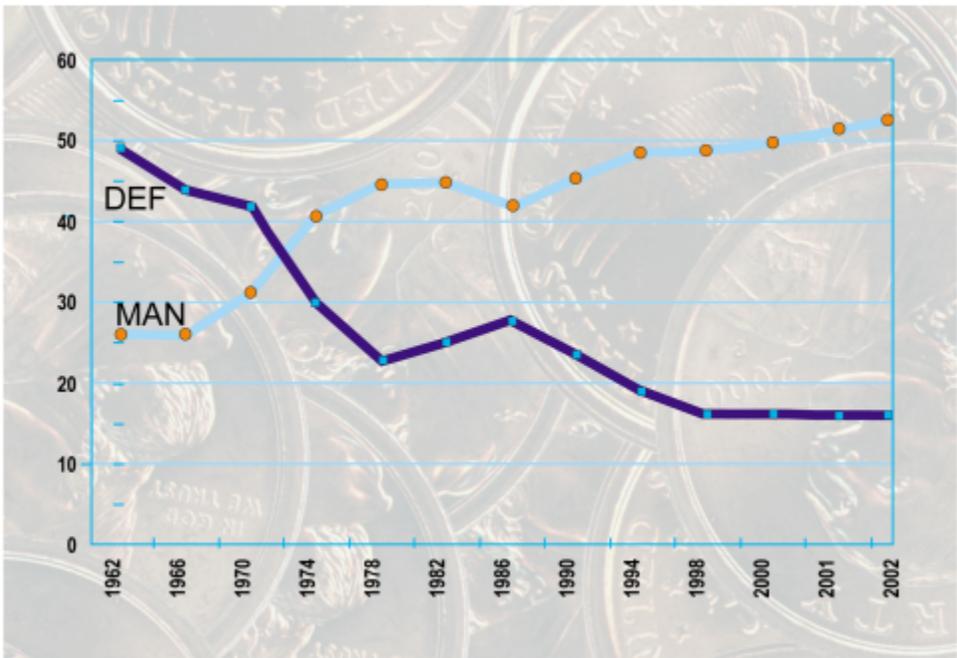
Funds to support the defense strategy are programmed, budgeted, authorized, appropriated, obligated, and finally expended to cover service investment and operational requirements. Total Obligational Authority (TOA) refers to the total financial resources available. Budget Authority (BA) refers to financial resources appropriated by Congress. The DoD Planning, Programming, and Budgeting System establishes procedures for the allocation of DoD TOA. Figure 5–1 displays the BA for all of DoD from FY96 through the FY02 Budget. The FY02 Budget estimate is the currently proposed defense spending level.

FIGURE 5–1: BUDGET AUTHORITY (FY01 CONSTANT DOLLARS — \$B)

<i>FY96</i>	<i>FY97</i>	<i>FY98</i>	<i>FY99</i>	<i>FY00</i>	<i>FY01</i>	<i>FY02</i>
285	282	277	293	288	291	303

There is a general perception that defense spending has increased over the past few years. However, figures 5–2 and 5–3 show otherwise. Figure 5–2, which shows the long-term trend in budget authority for the Department of Defense, depicts more than a decade of real decline in defense spending. Defense spending is now 31 percent below the FY85 peak year and on a par with the FY75 post Vietnam level.

FIGURE 5–2: DOD BUDGET AUTHORITY TRENDS (FY01 CONSTANT DOLLARS — \$B)



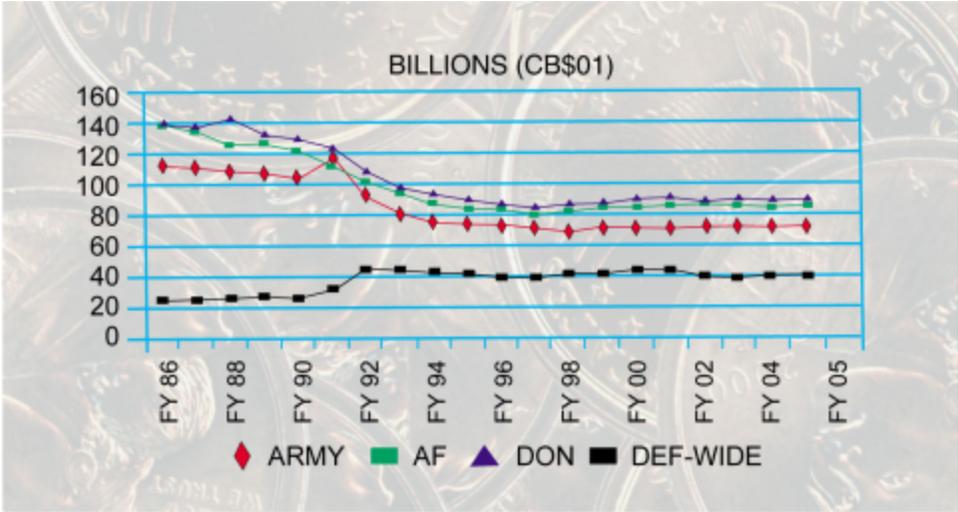
Viewed in terms of the percentage of total Federal spending, figure 5–3 shows how defense spending has been on a downward trend since the early 1960's where it reached a level of over 50 percent of the Federal Budget in FY62. Since then mandatory spending has increased to over 50 percent of total outlays and DoD has dropped to 16 percent. DoD Budget outlays are now significantly lower than non-DoD discretionary funding.

FIGURE 5–3: FEDERAL BUDGET TRENDS (PERCENT)



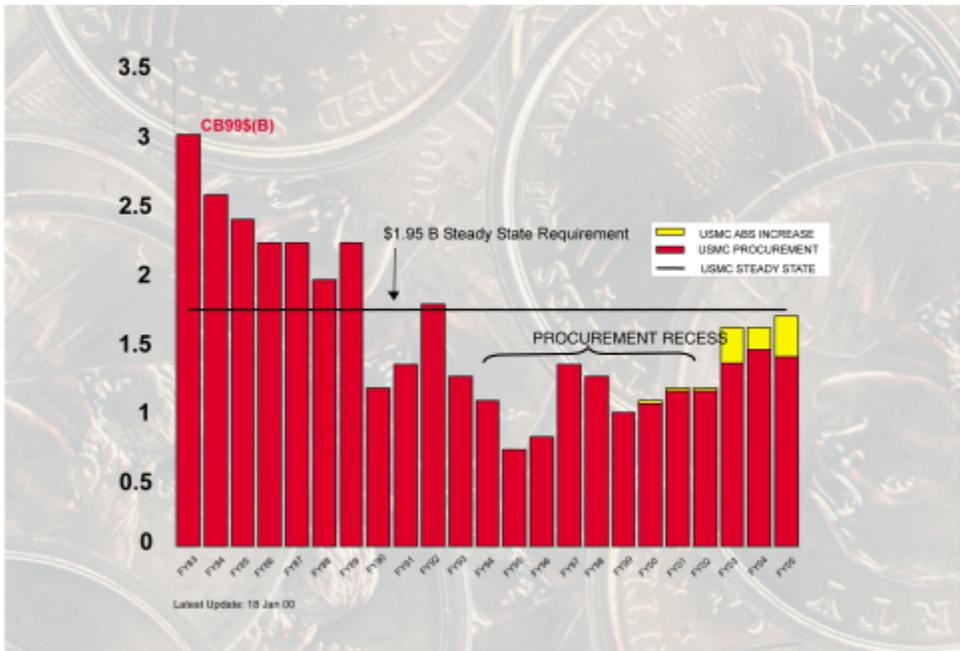
DOD TOA COMPARISONS. TOA trends for the major components of DoD are shown in figure 5–4 in FY01 constant dollar terms for the period FY86 to FY05. The FY01 to FY05 estimates of TOA are those submitted in the FY01 Budget request. Service TOAs dropped significantly during the period FY86 to FY94 but have remained fairly stable thereafter. Of particular note is the ramp up in Defense Agency funding during the early 90's and the sustainment of that level thereafter.

FIGURE 5–4: DOD TOA TRENDS (FY01 CONSTANT DOLLARS — \$B)



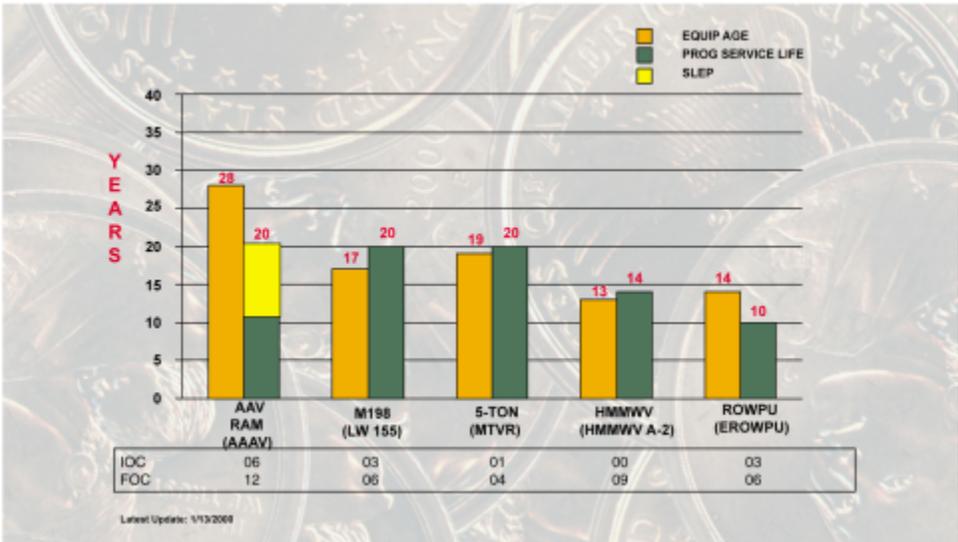
MARINE CORPS GROUND INVESTMENT. Marine Corps equipment modernization and research and development trends are shown in Figure 5–5. These accounts show serious deficiencies from FY93 through FY99 totaling \$3.6 billion. This is the result of annual funding being well short of the steady state level of \$1.2 billion needed annually to sustain the Corps. This extended period of underfunding has driven the recovery rate to \$1.8 billion per year. While the FY01 budget returns to the sustainment level it does not enable recovery from the cumulative effect of those years of underfunding.

FIGURE 5–5: HISTORICAL GROUND PROCUREMENT SUMMARY (FY01 CONSTANT DOLLARS)



As indicated in Figure 5–6 most of our major ground weapons systems are at or near the end of their planned service lives. When possible, we have taken advantage of remanufacturing and service life extension programs to extend their useful lives and bridge the gap until new equipment will be fielded. However, maintaining old equipment is a serious burden on both the man-hours of our young Marines and our O&M resources. Increasing the pace of modernization is key to meeting this challenge.

FIGURE 5–6: GROUND EQUIPMENT AGE



MARINE AVIATION PROCUREMENT. Marine Aviation procurement is a component of Aviation Procurement, Navy. In this context Marine Aircraft procurement funding is well below the historical “steady-state” level of \$1.95 billion (See Figure 5–7). This extended period of under funding has resulted in deferred replacement of our fleet of aging aircraft and resulted in increased time and money being spent to maintain aviation readiness. It has also driven our legacy systems to significantly exceed their service lives (See figure 5–8). While significant progress has been made in the current budget to recover from the procurement recess it still falls short of our steady state requirement necessary to sustain a modern capable Marine Corps.

FIGURE 5–7: HISTORICAL AIRCRAFT PROCUREMENT SUMMARY

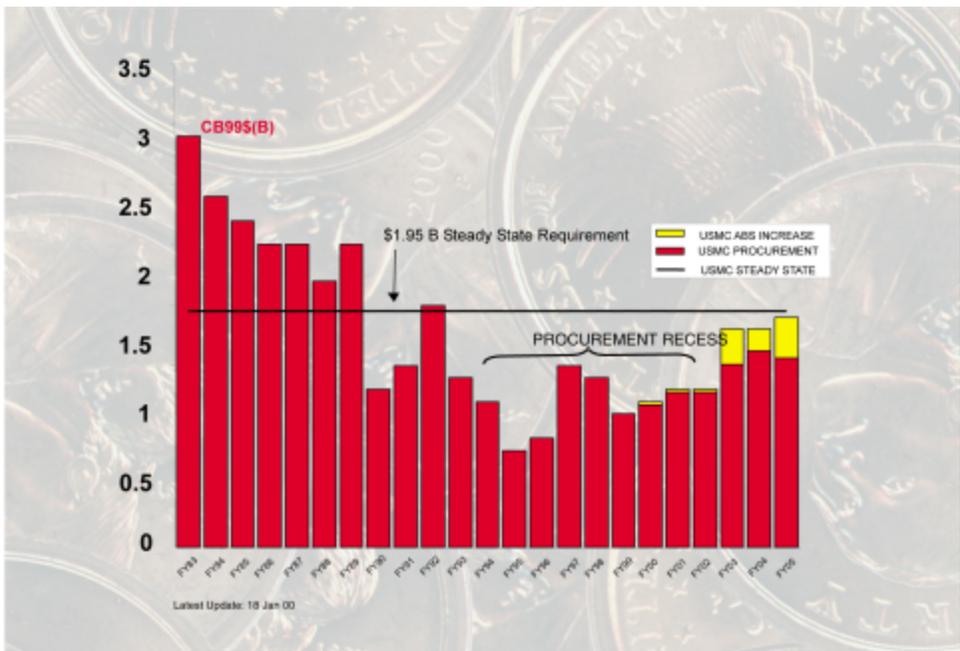
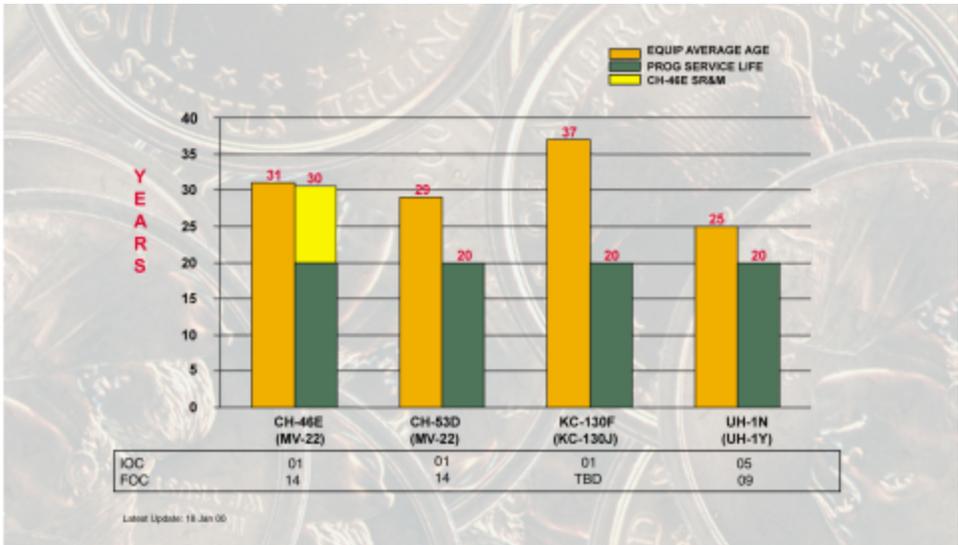


FIGURE 5–8: AGING AVIATION EQUIPMENT



Marine Corps FY02 TOA by Appropriations

Marine Corps appropriation details will be provided after the completion of the administration’s “Top to Bottom” Strategic Review and the FY02 President’s Budget is submitted to Congress.

Appendix A

How the Marines are Organized

Marines are organized as a “force-in-readiness” to support national needs. They are divided into four broad categories:

- Headquarters Marine Corps
- Operating Forces
- Reserves
- Supporting Establishment

Headquarters Marine Corps

Headquarters, U.S. Marine Corps consists of the Commandant of the Marine Corps and those staff agencies that advise and assist the Commandant in discharging those responsibilities prescribed by law and higher authority. The Commandant of the Marine Corps is directly responsible to the Secretary of the Navy for the administration, discipline, internal organization, training, requirements, efficiency, and readiness of the Marine Corps; the operation of the Marine Corps materiel support system; and the total performance of the Marine Corps.

Operating Forces

Operating forces, considered the heart of the Marine Corps, constitute the forward presence, crisis response, and fighting power available to the combatant commanders. Major elements include the Marine Forces Atlantic, Marine Forces Pacific, Marine Corps Security Forces, and the Marine Security Guard Battalion with its detachments at embassies and consulates around the globe. About 64 percent of all active duty Marines are assigned to these operating forces.

The “Forces for Unified Commands” Memorandum assigns Marine Corps operating forces to each of the combatant commands. Although there are five Marine Corps components, there are only two Marine Corps component commands. The Marine Corps has established two combatant command level service component commands: Marine Corps Forces Atlantic and Marine Corps Forces Pacific. The II Marine Expeditionary Force is provided by Commander, Marine Corps Forces Atlantic to the Commander-in-Chief,

U.S. Atlantic Command and the I and III Marine Expeditionary Forces are provided by Commander, Marine Corps Forces Pacific to the Commander-in-Chief, U.S. Pacific Command. This assignment reflects the peacetime disposition of Marine Corps Forces (MARFORs). Marine expeditionary forces are apportioned to the remaining geographic combatant commands for contingency planning and are provided to the combatant commands when directed by the Secretary of Defense.

The Commander, Marine Corps Forces Atlantic is assigned to the Commander-in-Chief, U.S. Atlantic Command and the Commander, Marine Corps Forces Pacific is assigned to the Commander-in-Chief, U.S. Pacific Command. In order to provide three star general officer representation to the remaining three geographic combatant commands, Commander, Marine Corps Forces Atlantic is the Marine Corps Component Commander to both Commander-in-Chief, U.S. European Command and Commander-in-Chief, U.S. Southern Command. The Commander, Marine Corps Forces Pacific is designated as the Marine Corps Component Commander to the Commander-in-Chief, U.S. Central Command.

The Marine Corps Security Forces protect key Naval installations and facilities worldwide. Although not assigned to combatant commands, they are part of the operating forces of the Marine Corps. These Security Forces include Marine Barracks and Marine Security Forces Companies in the continental United States and abroad. Marine Corps Security Forces personnel operationally report to the Chief of Naval Operations. The Marine Security Guard Battalion provides forces to the Department of State for embassy security. Marine Security Guard personnel operationally report to the Secretary of State.

Marine Air Ground Task Force (MAGTF)

The MAGTF (pronounced “mag-taff”) is the Marine Corps principle organization for the conduct of all missions across the range of military operations. The MAGTF provides a combatant commander-in-chief or other operational commanders with a versatile expeditionary force for responding to a broad range of crisis and conflict situations. MAGTFs are balanced, combined arms forces with organic command, ground, aviation, and sustainment elements.

MAGTF Capabilities

MAGTF capabilities are not built merely to wait for the next amphibious assault or regional war; they are deployed every day. Through operational experience, developed procedures, and honed training routines, the Marine Corps stands ready to respond. Our organization has evolved to handle uncertain world situations and has repeatedly demonstrated its worth. Embarked aboard amphibious ships, forward-deployed MAGTFs provide decision makers with the capabilities to:

- Move forces into crisis areas without revealing their exact destinations or intentions;
- Provide continuous presence in international waters;
- Provide immediate national response in support of humanitarian and natural disaster relief operations;
- Provide credible but non-provocative combat power over the horizon of a potential adversary, for rapid employment as the initial response to a crisis;
- Support diplomatic processes for peaceful crisis resolution before employing immediate response combat forces;
- Project measured degrees of combat power ashore, at night, and under adverse weather conditions, if required;
- Introduce additional forces sequentially into a theater of operations;
- Operate independent of established airfields, basing agreements, and overflight rights;
- Conduct combat operations ashore using inherent combat service support brought into the theater of operations;
- Enable the introduction of follow-on MAGTF or Joint and/or Combined forces by securing staging areas ashore;
- Operate in rural and urban environments or hostile nuclear, biological, and chemical situations;
- Withdraw rapidly at the conclusion of operations or remain to help restore stability to the affected areas; and
- Plan and commence execution of a mission within 6 to 48 hours of receiving a warning order.



MAGTF Composition

The Marine Corps task organizes for combat consistent with its statutory tasking to “... provide forces of combined arms, including aviation...” by forming forces into integrated, combined arms MAGTFs employed to accomplish assigned missions. MAGTFs are specifically tailored for rapid deployment by air and/or sea. MAGTFs are comprised of four elements:

- ❑ **Command Element (CE).** The CE contains the MAGTF headquarters and other units that provide intelligence, communications, and administrative support in general support of the MAGTF. As with all other elements of the MAGTF, it is task organized to provide the command, control, communications, computers, intelligence, and interoperability (C4I2) necessary for effective planning and execution of all operations.
- ❑ **Ground Combat Element (GCE).** The GCE is task organized to conduct ground operations to support the MAGTF mission. It may include infantry, artillery, reconnaissance, armor, engineer, and other forces as needed. The GCE can vary in size and composition from a light, air transportable unit such as a reinforced infantry battalion to one that is relatively heavy and mechanized, which may include one or more Marine, Army, or Allied divisions.
- ❑ **Aviation Combat Element (ACE).** The ACE conducts offensive and defensive air operations and is task organized to perform those functions of Marine aviation required to support the

MAGTF mission. It is formed around an aviation headquarters with appropriate air control agencies, combat, combat support, and combat service support units. The ACE can vary in size and composition from an aviation detachment of specifically required aircraft to one or more Marine aircraft wings (MAWs).

- ❑ **Combat Service Support Element (CSSE).** The CSSE is task organized to provide the full range of combat service support functions and capabilities necessary to support the continued readiness and sustainability of the MAGTF as a whole. It is formed around a combat service support headquarters and may vary in size and composition from a support detachment to one or more force service support groups (FSSGs).

Types of Marine Air Ground Task Forces

Four types of MAGTFs can be task organized as follows: the Marine Expeditionary Force, the Marine Expeditionary Brigade, the Marine Expeditionary Unit (Special Operations Capable), and the Special Purpose Marine Air Ground Task Force.

Marine Expeditionary Force (MEF). The MEF is the principal Marine Corps warfighting organization, particularly for a larger crisis or contingency, and is normally commanded by a Lieutenant General. A MEF can range in size from less than one to multiple divisions and aircraft wings, together with one or more FSSGs.

With 60 days of accompanying supplies, MEFs are capable of both amphibious operations and sustained operations ashore in any geographic environment. With appropriate augmentation, the MEF command element is capable of performing as a Joint Task Force (JTF) Headquarters.

MEFs are the primary “standing MAGTFs” (i.e., they exist in peacetime as well as wartime). Currently the Marine Corps is organized with three standing MEFs, each with a Marine division (MarDiv), MAW, and FSSG. The I Marine Expeditionary Force (I MEF) is located at bases in California and Arizona. The II Marine Expeditionary Force (II MEF) is located at bases in North Carolina and South Carolina. The III Marine Expeditionary Force (III MEF) is forward-based in Okinawa and Mainland Japan. Marine component headquarters, COMMARFORLANT or COMMARFORPAC, may form smaller

MAGTFs from these MEFs. The Marine Corps reservoir of combat capabilities — the divisions, wings, and force service support groups — are assigned to these standing MEFs. A MEF will normally deploy in echelon and will designate its lead element as the MEF (Forward).

Marine Expeditionary Brigade (MEB). The MEB is the mid-sized MAGTF and is normally commanded by a Brigadier General. The MEB provides transitional capability between the forwarded deployed MEU and the MEF, our principal warfighter. The MEB is a task organized MAGTF notionally composed of a reinforced infantry regiment, a composite Marine Aircraft Group (MAG), and a Brigade Service Support Group (BSSG). The command element of the MEB is embedded within the command element of its parent MEF.

The MEB provides supported CINCs with a scalable, warfighting capability across the spectrum of military operations that is rapidly deployable and which can impact all elements of the battlespace. An expeditionary force, it is capable of rapid deployment and employment via amphibious shipping, strategic air/sealift, geographic or maritime prepositioning force assets, or any combination thereof. With 30 days of accompanying supplies, MEBs are capable of amphibious assault and sustained operations ashore in any geographic environment. A MEB can operate independently or serve as the forward echelon of a MEF.

With additional MEF CE augmentation, a MEB is capable of performing as a JTF Headquarters. Currently, the 1st, 2d and 3d MEB Command Elements are embedded within the CEs of I, II and III MEF, respectively.

Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)). Forward deployed MEU (SOC)s embarked aboard Amphibious Ready Group (ARG) shipping operate continuously in the areas of responsibility of numerous Unified Commanders. These units provide the National Command Authorities and Unified Commanders an effective means of dealing with the uncertainties of future threats by providing forward deployed units which offer unique opportunities for a variety of quick reaction, sea-based, crisis response options in either a conventional amphibious/expeditionary role or in the execution of maritime special operations. The forward deployed MEU(SOC), forged and tested in real-world contingencies, remains the benchmark forward operating Marine force. The MEU is commanded by a colonel and deploys with 15 days of accompanying supplies.

Prior to deployment, the MEU undergoes an intensive 6 month training program focusing on its conventional and selected maritime special operations missions. The training culminates with a thorough evaluation and certification as “Special Operations Capable (SOC)”.

Special Purpose MAGTF (SPMAGTF). A SPMAGTF is task organized to accomplish a specific mission, operation, or regionally focused exercise. As such, SPMAGTFs can be organized, trained, and equipped to conduct a wide variety of expeditionary operations ranging from crisis response to training exercises and peacetime missions. They are designated as SPMAGTF with a mission, location, or exercise name: e.g., “SPMAGTF (X),” “SPMAGTF Somalia,” “SPMAGTF UNITAS”, or “SPMAGTF Dade County.” Their duties cover the spectrum from non-combatant evacuation to disaster relief and humanitarian missions.



World Map Showing Location of MEFs, MPSs, & MARFORS

MAGTF Sustainability

A fundamental characteristic of a MAGTF is its ability to operate for extended periods as an expeditionary force, relying on internal resources for sustainment. All MAGTFs have inherent sustainability to be self-sufficient for

planned periods. Larger MAGTFs have a deeper, broader, and more capable organic support capability. MAGTFs deploy with a portion of their accompanying supplies sufficient for a specific period of time:

- ❑ MEF — 60 days
- ❑ MEB — 30 days
- ❑ MEU — 15 days
- ❑ SPMAGTF — As the situation requires.

MAGTFs can augment their organic sustainability by using external support from Navy organizations, wartime host nation support (WHNS) agreements, inter-service support agreements (ISSAs), and in theater cross service support.

Maritime Prepositioning Forces (MPF)

MPFs provide an added dimension in mobility, readiness, and global responsiveness. The MPF program involves 13 ships organized in three squadrons. These squadrons are strategically positioned in the Atlantic, Indian, and Pacific Oceans. The MPF program reduces MAGTF response time from weeks to days by prepositioning the bulk of equipment and 30 days of supplies for a 17,300 MARFOR aboard specially designed ships. Personnel and selected equipment can be airlifted quickly, using roughly 250 airlift sorties, to an objective area to join with required equipment at a secure site.

As graphically demonstrated in Operation Desert Shield, MPFs are integral to the rapid deployment of credible combat power. MPF program flexibility has been increased through selective and innovative loading plans and development of enhanced deployment options.

Unique Unified Commander Support

A Combatant Commander or subordinate Joint Force Commander may also require MARFORs that do not possess all elements of a MAGTF; thus they are not given a MAGTF designation. Examples are installation security forces, engineer and medical support teams for humanitarian operations, deployments for training, law enforcement operations, and mobile training teams. In these cases, forces will be designated by the name of the senior headquarters having operational control; e.g., 1st Combat Engineer Battalion (Rein), 1st MarDiv.

Marine Expeditionary Units (Special Operations Capable)

COMMARFORLANT and COMMARFORPAC maintain forward-deployed MEU(SOC)s in the Mediterranean, Persian Gulf, and Pacific regions. In addition to conventional capabilities, the MEU(SOC) is augmented with selected attachments to provide enhanced capabilities. These special capabilities include:

- Close Quarters Battle;
- Specialized Demolition Operations;
- Clandestine Reconnaissance and Surveillance;
- Maritime Interdiction Operations;
- Direct Action;
- Gas and Oil Platform Operations;
- Tactical Recovery of Aircraft and/or Personnel;
- In-Extremist Hostage Recovery; and
- Clandestine Recovery Operations.

Other Special Purpose Marine Corps Forces

Air Contingency Forces. Both COMMARFOR PAC and COMMARFORLANT maintain Air Contingency MAGTFs (ACMs) in a continuous state of readiness. ACMs are air deployable forces available to the Unified Commanders with lead elements ready to deploy within 18 hours of notification. The ACMs provide great versatility in that they can be used as part of the fly-in echelon of a MPF, as reinforcement for an amphibious force, or as the lead element of a MEF.

The ACM will be task organized to meet the mission, the threat, and airlift availability. The size of the GCE can range from a reinforced rifle company plus a battalion headquarters element, to a regimental size force consisting of a regimental headquarters, two infantry battalions, a two battery artillery battalion, a two platoon reconnaissance company, a two platoon engineer company, and appropriate aviation and combat service support elements.

Norway Prepositioning Program. Similar in concept to the MPF but land based, this program currently stores supplies and combat equipment at secure locations in Norway for an airlifted force. Forward positioning of equipment saves both reaction time and tremendous additional airlift assets.

Marine Corps Security Forces (MCSF). About 3,200 Marines support or augment Navy security forces around vital naval assets worldwide. These forces are assigned to the Chief of Naval Operations and serve as operating forces of the Marine Corps. These forces include Marine Barracks, Marine Corps Security Force Companies, two Fleet Anti-terrorism Security Team (FAST) Companies which will deploy three FAST platoons in support of COMUSNAVCENT, CINC-PACFLT and COMUSNAVEUR, and a small number of cadre assigned to Navy regions to assist in training of Navy security personnel. The Marine Detachments previously assigned to aircraft carriers were disestablished in early 1998 as part as a coordinated effort to improve Naval security and force protection worldwide.

Marine Security Guard Battalion. The Marine Corps also provides forces to the Department of State for embassy security. Organized into the Marine Security Guard Battalion, these Marines are currently assigned to 123 embassies and consulates in 110 different countries. While not every American embassy or consulate has a Marine Security Guard detachment, those that do are protected by a security element that is both practical and impressive. Additionally, 36 new detachments are scheduled to open over the next 3 to 5 years.

Chemical/Biological Incident Response Force (CBIRF). CBIRF is the only U.S. force currently capable of performing Counter Terrorism Consequence Management on a large scale in a Chemical and/or Biological (CB) containment environment. CBIRF provides a MAGTF or on-scene commander with a fully integrated post-incident CB response management capability. CBIRF possesses enhanced NBC detection and protection capabilities beyond those of standard military units and is capable of detecting and identifying toxic industrial materials in addition to warfare agents.

Enhanced NBC Capability Set. This set will enhance near real-time agent detection, identification, processing, and decontamination support to the MEF and MEU(SOC) Commanders' initial response to an adversary's chemical and/or biological agent employment thereby increasing the units force protection capabilities.

Reserves

In addition to active forces, force expansion is made possible by the activation of the Marine Corps Reserve, which like the active forces, consists of a combined arms force with balanced ground, aviation, and combat service support units. Organized under the Commander, Marine Forces Reserve (COMMARFORRES), units of this command are located at 190 training centers in 47 states, Puerto Rico, and the District of Columbia

Over the past several years, the Reserve Component has been closely integrated with the Active Component in our Total Force concept. The Reserves provide individuals and specific units to augment and reinforce active capabilities.



Supporting Establishment

The Marine Corps Supporting Establishment consists of those personnel, bases, and activities that support the Marine Corps operating forces. This infrastructure consists primarily of 17 major bases and stations in the United States and Japan and all personnel, equipment, and facilities required to operate them. This equates to approximately 32,000 Marines. The Supporting Establishment also includes the Marine Corps Recruiting Command, the Marine Corps Combat Development Command, and Marine Corps Systems Command, as well as all the training activities and formal schools. Additionally, the Supporting Establishment includes those civilian activities and agencies that provide support to the MARFORs.

Marine Corps Total Force

There is a direct relationship between the size of the Marine Corps and the contribution made to our national defense. Large scale deployments, operations, and training exercises with Allies are part of our training and presence requirements in peacetime. About 23 percent of our operating forces are forward deployed during peacetime, which predicates a high deployment tempo and a corresponding CONUS rotation base. As the U.S. retains a desire to maintain stability in areas where we have significant interests, the requirement for forward deployed forces will continue.

History Of Innovation



A PROVEN FORCE IN READINESS

NAVAL CHARACTER

Unlike any military force in the world, the naval character of the Navy-Marine Corps team singularly gives our Nation an enduring means to shape and influence global events.

MAGTF

Marine Air Ground Task Forces are how Marines organize to fight. It is the integration of air and ground forces with supporting logistics and state-of-the-art command and control. A MAGTF can be as large as a Marine Expeditionary Force (46,000 Marines) or as small as a Marine Expeditionary Unit (2,200 Marines).

MEU OPERATIONS

Marine Expeditionary Units (Special Operations Capable) are 2,200 heavily armed Marine air and ground crisis response forces capable of conventional or special operations. MEUs are forward-deployed and

History Of Innovation

Today it is hard to imagine a Marine Corps in which excellence in marksmanship was not the rule, but such was the state of the Corps in the 1890s. Through the leadership of a few Marines, beginning with Commandant Maj. Gen. Charles Heywood, the Corps developed the marksmanship techniques and training that would lead to the domination of competitive shooting and the accurate rifle fire identified



with latter-day Marines. The creed “every Marine a rifleman” became reality on the battlefields of France in World War I, in the Pacific during World War II, and in the wars in Korea, Vietnam, and the Persian Gulf.

The Corps’ attention to improvements in individual weapons, and its policy of insisting that every Marine qualify in their use, has paid great dividends. Marines provided the impetus for improvements in the M-14, and later M-16 rifle, leading to today’s more accurate and reliable M-16A2.

The development of amphibious warfare techniques and equipment is the area where Marine Corps innovation has played the most important role in warfighting doctrine. From the time of the Barbary Wars in the early 19th century, the Navy-Marine Corps team had proven to be a forceful instrument for projecting U.S. power and protecting U.S. interests. The

lessons of the Spanish-American War made it apparent that offensive assault missions from the sea could best be fulfilled by the Marine Corps. Marine visionaries and pioneers, who saw the close relationship between the exercise of sea power and the more narrow issue of seizing a hostile shore against entrenched opposition, developed and codified over the next several decades the doctrine needed to conduct an amphibious assault.

Writing to the General Board of the Navy in February 1922, Maj. Gen. John A. Lejeune asserted the importance of having “a mobile Marine Corps force adequate to conduct offensive land operations against hostile naval bases.” This fresh direction for the Corps culminated in publication of the Tentative Landing Operations Manual in 1935. Annual fleet landing exercises were conducted with the Navy until the outbreak of World War II.

With the developments in doctrine and techniques came the need for specialized equipment to lift men and weapons ashore against hostile fire. After experimenting with the British-designed “Beetle boat” and “Christie tank,” a ramp-type boat designed by Andrew Higgins was adopted and the LCVP (landing craft, vehicle, personnel) and LCM (landing craft, mechanized) became a reality—landing craft that would hit every beach from Guadalcanal to Normandy. Marine pioneers, foreseeing the need for a vehicle that could operate on land and water, pushed for the development of a military amphibian vehicle based on Donald Roebling Jr.’s “Alligator” rescue tractor. From the arrival of the first LVTs (landing vehicle, tracked) in July 1941, Marine innovators continued to be a driving force for improvements and modifications of the LVT throughout World War II.

During World War II many additions and variations were made on the tactics and techniques involved in amphibious operations. Perhaps the greatest improvements came in the

logistically self-contained on amphibious assault ships on patrol in strategic areas of the world. MEUs are trained to respond to contingencies in less than six hours.

MPF ENHANCEMENT

The Maritime Prepositioning Force is a key element of the Marine Corps’ expeditionary capability. The Marine Corps’ MPF(E) program will add an additional ship to each squadron (for a total of three ships). The MPF remains a cost-effective, proven, and relevant capability for use in responding to crises overseas.

FORCE STRUCTURE

The Marine Air-Ground Task Forces are tailored for an expeditionary forward presence, rapid expansion, and warfighting. Whether it’s Desert Storm or restoring hope in a third world country with humanitarian aid, our structure continues to demonstrate the versatility to project decisive action across the range of operational situations.

INNOVATION AT WORK

EMW

Expeditionary Maneuver Warfare is the Marine Corps' capstone operational warfighting concept for the 21st Century. It is applicable across the range of military operations, from Major Theater War (MTW) to smaller scale with the combined arms power of the MAGTF give the Marine Corps a powerful forced-entry capability.

MV-22

The V-22 Osprey is a joint, multi-mission, vertical/short take-off and landing (VTOL) tilt-rotor aircraft. It performs a wide range of VTOL missions as effectively as a conventional helicopter while achieving the long-range cruise efficiencies of a twin turboprop aircraft. The Osprey is the Marine Corps' top aviation acquisition priority.

use of naval gunfire to support landing forces, the perfection of close air support, and the development of fire support coordination centers to act as clearing houses for battlefield requests for close support.

Marine aviators made impressive contributions in the tactics and techniques of aerial warfare. Beginning in Nicaragua in 1927, Marine aviators experimented with dive-bombing. Later they developed and adopted the tactic of relying on ground troops to direct air attacks. They also demonstrated the effective use of aircraft in medical evacuation and resupply. These techniques and skills, further developed in World War II, were refined into arts in Korea and Vietnam.

The Marine Corps pioneered three material innovations during the Korean War that proved successful and were adopted by the other services—the thermal boot, individual body



armor, and the helicopter; all were first combat-tested in Korea's rugged hills.

While helicopters had been flown experimentally toward the end of World War II, it was the Marine Corps that, beginning in 1947, pioneered the development of combat techniques using the rotor-driven aircraft as a

means of enhancing its amphibious assault capabilities. The Corps also developed tactics for “vertical envelopment” as an extension of assault operations. In addition to the practical



use of the helicopter, several refinements in Marine Corps fixed-wing close air support proved to be decisive factors in a number of Korean War battles.

In the post-Korean War period the Marine Corps focused on further development of the Fleet Marine Force to support its force-in-readiness mission, along with adapting amphibious techniques and equipment to meet Cold War requirements. Among these pioneering efforts were the reconfiguration of a number of former attack aircraft carriers into helicopter carriers and the development of the short tactical airfield and fuel-handling systems.

Vietnam occasioned a refinement in the evolution of tactical mobility through the expanded use of helicopters, along with participation in pacification—more specifically, civic action, which became an integral part of Marine operations in Vietnam.

In the 1970s and 1980s Marine innovators continued to invigorate the traditional force-in-readiness concept of ground combat units supported by air with the establishment of the

ADVANCED AMPHIBIOUS ASSAULT VEHICLE

The AAV will allow naval expeditionary forces to eliminate the battlefield mobility gap and, for the first time in the history of Naval warfare, maneuver ashore in a single stroke giving both the ships and landing forces sufficient sea space for maneuver, surprise, and protection. The AAV is the Marine Corps' number one ground acquisition priority.

JOINT STRIKE FIGHTER

The JSF will be a single engine, stealthy, supersonic, strike-fighter aircraft capable of short take-offs and vertical landing. It will combine the basing flexibility of the A/V-8B with the multi-role capabilities, speed, and maneuverability of the F/A-18 to fulfill both air-to-ground and air-to-air requirements.

INNOVATION AT WORK

MARINE CORPS WARFIGHTING LAB

This military applications laboratory serves as the cradle and test-bed for the development of new operational concepts, tactics, and procedures for future wars. The lab is helping us build the Corps of the 21st Century.

URBAN WARFARE

The Marine Corps is emphasizing urban warfare training. The world's coastlines are becoming more urbanized and the Corps is training its Marines to fight in a high-tech, close quarter battlefield.



Marine Air-Ground Task Force structure and the flexible rapid-deployment force (RDF). The RDF, in turn, provided the impetus for the Navy-Marine Corps Maritime Prepositioning Ship program which puts preloaded supply ships in strategically important locations in the world's oceans, allowing Marines to respond more quickly to crises around the world.

The introduction of the high-speed LCAC (landing craft, air cushion) greatly increased Marine Corps operational mobility and reach. Similarly, the introduction of the AV-8 Harrier vertical/short takeoff and landing attack aircraft (the most forward-deployed U.S. or coalition tactical aircraft in the Persian Gulf area during Desert Storm) represented a major evolutionary development in Marine Corps aviation.

This pattern of vision, experimentation, and innovation is a hallmark of our Corps. It continues today. For example, our Chemical-Biological Incident Response Force is a new, one-of-a kind unit that provides America a better ability to respond to the consequences of chemical-biological terrorism.

And at the dawn of the 21st Century, we are ushering in the MV-22 Osprey tilt-rotor aircraft, Advanced Amphibious Assault Vehicle (AAAV), Joint Strike Fighter (JSF), Medium and Light Tactical Vehicle Replacement (M/LTVR) Programs, Logistics Vehicle System Replacement (LVSr) Program, Lightweight 155MM Howitzer (LW155), and the San Antonio Class Landing Ship LPD-17 which promise to enhance the Corps' firepower, mobility and mission flexibility in the future. The MV-22 will join the AAAV, LCAC and LPD-17 as an integral part of the Corps' concept of for enhanced power projection. These major contributions to the development of warfighting concepts, weaponry, and equipment enable the Corps to face the dawn of the 21st Century with a confidence born from a proud heritage of innovation, ingenuity, and a willingness to continually adapt to changes across the spectrum of conflict.

In fact, so fundamental is our commitment to the future that we have established a Warfighting Laboratory that is responsible for developing and field testing future operational and technological concepts. Sea Dragon is the Marine Corps' name for the laboratory's process to foster rapid military innovation. We intend to "ride the dragon of change" into the 21st Century, and continue to take advantage of the opportunities it brings.



NON LETHAL WEAPONS

The Marine Corps is fielding and training with a new class of weapons designed to stun and incapacitate without causing permanent injuries or gross physical destruction to property. NLW will expand the range of options open to commanders in Military Operations other than War.

CBIRF

Chemical Biological Incident Response Force is a national asset provided by the Marine Corps that is manned, trained, and equipped to respond to chemical or biological terrorist incidents. CBIRF is a rapid response, initial detection, decontamination, and treatment capability trained to respond after a chemical or biological attack.

Appendix B – Abbreviations and Acronyms

This appendix provides a list of abbreviations and acronyms commonly used in Marine Corps correspondence, publications, and daily dialogue, and is provided for reference purposes. Not all listed acronyms are included in this publication.

A2C2S	Airborne Command and Control System
AAAV	Advanced Amphibious Assault Vehicle
AAP	Abbreviated Acquisition Program
AAV	Assault Amphibious Vehicle
AAW	Anti-Air Warfare
AAWS-H	Anti-Armor Weapon System-Heavy
AAWS-M	Advanced Antitank Weapon System-Medium
ABC/M	Activity Based Costing and Management
ABT	Air Breathing Targets
ABV	Assault Breaching Vehicle
ACADA	Automatic Chemical Agent Detector Alarm
ACAT	Acquisition Category
ACE	Aviation Combat Element
ACM	Air Contingency MAGTF
ACP	Aviation Continuation Pay
ACS	Advanced Countermine System
ACTD	Advanced Concept Technology Demonstration
ADCP	Air Defense Communications Platform
ADFC	Advanced Digital Fire Control System
ADM	Acquisition Decision Memorandum
ADS	Advanced Distributed Simulation
AE	Assault Echelon
AFATDS	Advanced Field Artillery Tactical Data System
AFOE	Assault Follow-On Echelon
AFV	Armored Fighting Vehicle
AGLEP	Advanced Ground Laser Eye Protection
AGS	Advanced Gun System
AIT	Automated Identification Technology
ALAM	Advanced Land Attack Missile
ALC	Area Learning Center
ALEP	Amphibious Lift Enhancement Plan
ALICE	All-Purpose Lightweight Individual Carrying Equipment

AMRAAM	Advanced Medium Air to Air Missile
AMC	Air Mobility Command
AMCM	Airborne Mine Countermeasures
ANBACIS	Automated Nuclear Biological and Chemical Information System
ANGLICO	Air/Naval Gunfire Liaison Company
AO	Acquisition Objective
AOA	Analysis of Alternatives
AOR	Area of Responsibility
AP	Anti-Personnel
APN	Aircraft Procurement Navy
APOBS	Antipersonnel Obstacle Breaching System
APS	Active Protection System
ARC	Aviation Refueler Capability
ARDEC	Army Research Development and Engineering Center
ARG	Amphibious Ready Group
ARPA	Advanced Research Projects Agency
AS	Analysis Substation
ASPARCS	Air Surveillance and Precision Approach Radar Control System
ATACC	Advanced Tactical Air Command Central
ATACMS	Army Tactical Missile System
ATARS	Advanced Tactical Airborne Reconnaissance System
ATC	Air Traffic Control
ATD	Advanced Technology Development
ATF	Amphibious Task Force
ATLASS	Asset Tracking Logistics and Supply System
ATM	Asynchronous Transfer Mode
ATO	Air Tasking Order
AUTODIN	Automated Digital Network
AVDTV	Armored Vehicle Driver's Thermal Viewer
AVDVE	Armored Vehicle Driver's Vision Enhancer
AWE	Advanced Warfighting Experiment
BA	Budget Activity/Authority
BFV	Bradley Fighting Vehicle
BMAR	Backlog of Maintenance and Repair
BOS	Base Operating Support
BRAC	Base Realignment and Closure

BST	Basic Skills Trainer
BTI	Base Telecommunications Infrastructure
BU	Block Upgrade
BUMED	Bureau of Medicine
BUR	Bottom-Up Review
BV	Base Vehicle
C2	Command and Control
C2PC	Command and Control Personal Computer
C3I	Command, Control, Communications and Intelligence
C4I	Command, Control, Communications, Computers and Intelligence
CAC2S	Common Aviation Command and Control System
CAEMS	Computer-Aided Embarkation Management System
CAM	Chemical Agent Monitor
CASTFOREM	Combined Arms and Support Task Force Evaluation Model
CATF	Commander Amphibious Task Force
CAX	Combined Arms Exercise
CBIRF	Chemical/Biological Incident Response Force
CBIS	Chemical/Biological Individual Sampler
CBRP	Concept Based Requirements Process
CBRS	Concept Based Requirements System
CBV	Combat Breacher Vehicle
CCP	Consolidated Cryptologic Program
CCS COMINT	Collection Subsystem
CCS-OS	CCS Outstation
CD	Counter-drug
CDPU	Computer Data Processing Unit
CDR	Critical Design Review
CDS	Combat Development System
CE	Command Element
CEC	Cooperative Engagement Capability
CECM	Communications Electronic Countermeasures
CENTCOM	Central Command
CFAC	Clear Facilities
CFR	Crash Fire and Rescue
CG	Commanding General
CI	Counter Intelligence

CIA	Central Intelligence Agency
CIARDS	CIA Retirement and Disability System
CIC	Combat Integration Capability
CID	Combat Identification
CIGSS	Common Imagery Ground/Surface System
CINC	Commander-in-Chief
CINCLANT	Commander-in-Chief Atlantic
CINCPAC	Commander-in-Chief Pacific
CJTF	Commander Joint Task Force
CLASS	Closed Loop Artillery Simulation System
CLAWS	Complimentary Low Altitude Weapon System
CMC	Commandant of the Marine Corps
CMOS	Cargo Movement Operations System
CMV	Combat Mobility Vehicle
CNA	Center for Naval Analyses
COBRA	Coastal Battlefield Reconnaissance and Analysis
COE	Common Operating Environment
COE	Concept of Employment
COMINT	Communications Intelligence
COMNAV	Communications Navigation
COMSEC	Communications Security
COMUSNAVCENT	Commander U.S. Navy Central
COMUSNAVEUR	Commander U.S. Navy Europe
COMUSNAVPAC	Commander U.S. Navy Pacific
CONUS	Continental United States
COP	Common Operational Picture
CORM	Commission on Roles and Missions of the Armed Forces
COTS	Commercial off-the-Shelf
CP	Command Post
CPE	Collective Protection Environment
CPG	Commandant's Planning Guidance
CPU	Central Processing Unit
CPX	Command Post Exercise
CQB	Close Quarters Battle
CR	Combat Requirement
CRDEC	Chemical Research Development & Engineering Center
CRS	Canteen Refilling System
CS	Communication Subsystem

CSAR	Combat Search and Rescue
CSS	Combat Service Support
CSSE	Combat Service Support Element
CSSE SDE	Combat Service Support Element Shared Data Environment
CSSE SE	Combat Service Support Element Supporting Establishment
CTAPS	Contingency Theater Automated Planning System
CTI	Central Tire Inflation
CTOL	Conventional Take Off and Landing
CTT	Commanders Tactical Terminal
CU	Cooperating Unit
CV	Aircraft Carrier
CVAT	Combat Vehicle Appended Trainer
CVBG	Carrier Battle Group
CWAR	Continuous Wave Acquisition Radar
DAB	Defense Acquisition Board
DACT	Data Automated Communications Terminal
DAMA	Demand Assigned Multiple Access
DARP	Defense Airborne Reconnaissance Program
DASC	Direct Air Support Center
DAWMS	Deep Attack Weapons Mix Study
DBBL	Dismounted Battlespace Battle Lab
DBOF	Defense Business Operations Fund
DCP	Defense Cryptologic Program
DCU	Dynamic Component Upgrade
DDS	Data Distribution System
DEPTempo	Deployment Tempo
DF	Direction Finding
DFT	Deployments for Training
DGIAP	Defense General Intelligence and Applications Program
DHS	Defense HUMINT Service
DIA	Defense Intelligence Agency
DICP	Defense Intelligence Counter-drug Program
DII	Defense Information Infrastructure
DIMAP	Defense Imagery and Mapping Program
DIS	Distributed Interactive Simulation
DISA	Defense Information Systems Agency
DISTP	Defense Special Technology Program

DITP	Defense Intelligence Tactical Program
DJCIP	Defense Joint Counterintelligence Program
DL	Distance Learning
DLC	Distance Learning Center
DMRD	Defense Management Review Decision
DMS	Defense Messaging System
DMSO	Defense Modeling and Simulation Office
DMSS	Defense Medical Surveillance System
DOA	Days of Ammunition
DoD	Department of Defense
DON	Department of the Navy
DOS	Days of Supply
DPE	Data Processing Equipment
DPG	Defense Planning Guidance
DPP	Defense Program Projection
DPRB	Defense Planning and Resources Board
DR	Digital Radiography
DSCS	Defense Satellite Communications System
DSN	Defense Switched Network
DSRP	Defense Space Reconnaissance Program
DST	Decision Support Tols
DT	Developmental Test
DTC	Digital Technical Control
DTS	Defense Transportation System
DWIS PIP	Digital Wideband Transmission System Product Improvement Program
EA	Electronic Attack
EAF	Expeditionary Airfield
EB	Enlistment Bonus
EBFL	Extended Boom Forklift
EDM	Engineering Development Model
EHF	Extremely High Frequency
ELINT	Electronics Intelligence
E-MAIL	Electronic Mail
EMD	Engineering and Manufacturing Development
EMW	Expeditionary Maneuver Warfare
E-NBC	Enhanced NBC Capability
EO	Electro Optical
EOB	Electronic Order of Battle
EOD	Explosives Ordnance and Disposal

EP	Electronic Protection
EPLRS	Enhanced Position Location Reporting System
EPUU	Enhanced PLRS User Units
ERGM	Extended Range Guided Munitions
ERIP	Engine Reliability Program
EROWPU	Enhanced Reverse Osmosis Water Purification Unit
ES	Equipment Suite
ESP	Extended Service Program
ESS	Electronics Intelligence (ELINT) Support System
ETSS	Extended Training Service Specialist
EUCOM	European Command
EUL	Economic Useful Life
EW	Electronic Warfare
FAC	Forward Air Controller
FARP	Forward Arming and Refueling Point
FAST	Fleet Anti-Terrorism Security Team
FATS	Firearms Training System
FAV	Fast Attack Vehicle
FBU	Front Power Unit
FCIP	Foreign Counterintelligence Program
FDC	Fire Direction Center
FDP	FAST Deployment Program
FDS	Field Development System
FEP	Firepower Enhancement Program
FEX	Field Exercise
FH	Frequency Hopping
FHMC	Family Housing Marine Corps
FIE	Fly-in Echelon
FIU	Force Imagery Interpretation Unit
FIM	Family of Improved Mortars
FLC	Functional Learning Center
FLIR	Forward Looking Infrared
FLPP	Foreign Language Proficiency Pay
FM	Frequency Modulation
FMF	Fleet Marine Force
FOB	Forward Operating Base
FO	Forward Observer
FOC	Full Operational Capability
FOF	Floating Offshore Facility

FOTS	Follow-on-to-Shoulder-Launched Multipurpose Assault Weapon (SMAW)
FOTT	Follow-on-to-TOW
FPLIF	Field Pack Large with Internal Frame
FRSS	Forward Resuscitative Surgery System
FSC2S	Fire Support Command and Control System
FSCC	Fire Support Coordination Center
FSED	Full Scale Engineering Development
FSSG	Force Service Support Group
FTE	Full Time Equivalent
FTS	Full Time Support
FTSS	Family of Tactical Soft Shelters
FY	Fiscal Year
FYDP	Future Year Defense Plan
FYEP	Five Year Experimentation Plan
GBS	Global Broadcast Service
GCCS	Global Command and Control System
GCE	Ground Combat Element
GCS	Ground Control Station
GCSS	Global Command Support System
GDIP	General Defense Intelligence Program
GLPS	Gun Laying and Positioning System
GMF	Ground Mobile Forces
GOTS	Government off-the-Shelf
GP	General Purpose
GPR	Ground Processing Requirement
GPS	Global Positioning System
GTN	Global Transportation Network
HARM	High-Speed Anti-radiation Missile
HAW	Heavy Anti-armor Weapon
HE	High Explosive
HEMTT	Heavy Expanded Mobility Tactical Truck
HERCULES	Heavy Equipment Recovery Combat Utility Lift and Evacuation System
HF	High Frequency
HLA	High Level Architecture
HMD	High Mobility Downsize
H-HMMWV	Heavy Variant High Mobility Multipurpose Wheeled Vehicle
HIMARS	High Mobility Artillery Rocket System

HMMWV	High Mobility Multipurpose Wheeled Vehicle
HQMC	Headquarters, U.S. Marine Corps
HUD	Head-Up Display
HUMINT	Human Source Intelligence
HWTS	Heavy Weapons Thermal Sight
I2	Image Intensification
IA	Information Assurance
IAC	Intelligence Analysis Center
IAS	Intelligence Analysis System
ICAD	Individual Chemical Agent Detector
ICCE	Individual Combat Clothing and Equipment
IDASC	Improved Direct Air Support Center
IELD	Improved External Lift Device
IEWCS	Intelligence and Electronic Warfare Common Sensor
IFAV	Interim Fast Attack Vehicle
IFF	Identify Friend or Foe
IFSAS	Initial Fire Support Automated System
IICS	Integrated Infantry Combat System
ILC	Integrated Logistics Capability
IMI	Interactive Multimedia Instruction
IMINT	Imagery Intelligence
INFOSEC	Information Security
INTEL	Intelligence
INS	Inertial Navigation System
IO	Information Systems
IOC	Initial Operational Capability
IOT	Initial Operational Test
IOT&E	Initial Operational Test and Evaluation
IOW	Intelligence Operations Workstations
IPCOT	In-Place Continuation of Overseas Tour
IR	Infrared
IRAM	Improved Reliability and Maintainability
IR3B	Integrated Resources and Requirements Review Board
IRR	Individual Ready Reserve
IRV	Improved Recovery Vehicle
IS	Interim Standardization
ISDN	Integrated Services Digital Network
ISMT	Indoor Simulated Marksmanship Trainer

ISMT-E	Indoor Simulated Marksmanship Trainer-Enhanced
ISR	Intelligence, Surveillance and Reconnaissance
ISSA	Inter-service Support Agreement
IST	Infantry Squad Trainer
IT	Information Technology
ITV	Internally Transportable Vehicle
ITV	In-Transit Visibility
JAC	Joint Analysis Center
JBPDS	Joint Biological Point Detection System
JCAD	Joint Chemical Agent Detector
JCATS	Joint Conflict and Tactical Simulation
JCS	Joint Chiefs of Staff
JDAM	Joint Direct Attack Munitions
JFACC	Joint Force Air Component Commander
JFC	Joint Forces Commander
JIC	Joint Intelligence Center
JIPT	Joint Integrated Product Team
JM	JTIDS Module
JMA/SA	Joint Mission Area/Support Area
JMASS	Joint Modeling and Simulation System
JMCIS UB	Joint Maritime Command Information System Unified Build
JMIP	Joint Military Intelligence Program
JNLWD	Joint Non-Lethal Weapons Directorate
JNMS	Joint Network Management System
JOPEs	Joint Operation Planning and Execution System
JOTS	Joint Operational Tactical System
JPO-BIO	Joint Program Office for Biological Defense
JROC	Joint Requirements Oversight Council
JSCP	Joint Strategic Capabilities Plan
JSF	Joint Strike Fighter
JSFXD	Joint Service Fixed Site Decontamination
JSIG	Joint Service Integration Group
JSIMS	Joint Simulation System
JSIPS	Joint Services Imagery Processing System
JSIPS TEG	Joint Services Imagery Processing System Tactical Exploitation Group
JSLIST	Joint Service Lightweight Integrated Suit Technology
JSLNBCRS	Joint Service Light NBC Reconnaissance System

JSLSCAD	Joint Services Lightweight Chemical Standoff Agent Detector
JSTARS	Joint Surveillance Target Attack Radar System
JTF HQ	Joint Task Force Headquarters
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System
JWARN	Joint Warning and Reporting Network
JWARS	Joint Warfare System
JWCA	Joint Warfighting Capability Assessment
JWFC	Joint Warfighting Center
JWID	Joint Warrior Interoperability Demonstrations
LAAD	Low Altitude Air Defense
LAAD	BN Low Altitude Air Defense Battalion
LAAM	Light Anti-Aircraft Missile
LAI	Light Armored Infantry
LAN	Local Area Network
LASM	Land Attack Standard Missile
LAV	Light Armored Vehicle
LAV-AD	Light Armored Vehicle-Air Defense
LAV-FIST	LAV-Full-Crew Interactive Simulator Trainer
LCAC	Landing Craft Air Cushion
LEWDD	Lightweight Early Warning Detection Device
LHA	Amphibious Assault Ship - General Purpose
LHD	Amphibious Assault Ship - Multipurpose
LIC	Low Intensity Conflict
LLDR	Lightweight Laser Designator Range finder
LLI Long	Lead Item
LMCC	Logistics Movement Control Center
LME	Lightweight Maintenance Enclosure
LMS	Lightweight Multipurpose Shelter
LNBCRS	Lightweight Nuclear Biological and Chemical Reconnaissance System
LOE	Limited Objective Experiment
LOGAIS	Logistics Automated Information System
LP/OP	Listening Post/Observation Post
LPD	Amphibious Transport Dock [Ship]
LPH	Amphibious Assault Ship - Helicopter
LRA	Local Registration Authority
LRC	Learning Resource Center
LRIP	Low Rate Initial Production

LRU	Line Replaceable Units
LSC	Light Strike Craft
LST	Laser Spot Trackers
LTA	Launch Tube Assembly
LTVR	Light Tactical Vehicle Replacement
LUT	Limited User Test
LVS	Logistics Vehicle System
LW155	Lightweight 155mm Howitzer
LWH	Lightweight Helmet
LWTC	Littoral Warfare Training Complex
M&S	Modeling and Simulation
MAA	Mission Area Analysis
MACCS	Marine Air Command and Control System
MACS	Magnetic Countermine System
MAG	Marine Aircraft Group
MAGIS	Marine Air-Ground Intelligence System
MAGTF	Marine Air-Ground Task Force
MARCENT	Marine Forces Central Command
MARCORSYSCOM	Marine Corps Systems Command
MARDIV	Marine Division
MARFORLANT	Marine Forces Atlantic
MARFORPAC	Marine Forces Pacific
MARFORRES	Marine Forces Reserve
MARINET	Marine Corps Learning Network
MASINT	Measurement and Signature Intelligence
MATCAL	Marine Air Traffic Control and Landing System
MATCD	Marine Air Traffic Control Detachment
MAW	Marine Aircraft Wing
MAW	Medium Anti-Armor Weapon
MAWTS-1	Marine Aviation Weapons and Tactics Squadron- One
MBC	Mortar Ballistic Computer
Mbps	Megabits per second
MBST	Marine Battle Skills Training
MBT	Main Battle Tank
MCAGCC	Marine Corps Air-Ground Combat Center
MCARMS	Marine Corps Ammunition Requirements Management System
MCAS	Marine Corps Air Station
MCASS	Marine Common Application Support Software

MCB	Marine Corps Base
MCB	Mine Clearing Blade
MCCDC	Marine Corps Combat Development Command
MCCPIP	Marine Corps Continuous Process Improvement Program
MCCS	Marine Corps Community Services
MCDN	Marine Corps Data Network
MCEN	Marine Corps Enterprise Network
MCFSS	Marine Corps Fire Support System
MCHS	Marine Corps Common Hardware Suite
MCI	Marine Corps Institute
MCIA	Marine Corps Intelligence Activity
MCISU	Marine Corps Imagery Support Unit
MCM	Mine Countermeasures
MCMP	Marine Corps Master Plan
MCMSO	Marine Corps Modeling and Simulation Management Office
MCMWTC	Marine Corps Mountain Warfare Training Center
MCNR	Military Construction Navy Reserve
MCON	Military Construction
MCRC	Marine Corps Recruiting Command
MCSF	Marine Corps Security Forces
MCSSC2	Marine Combat Service Support Command and Control
MCT	Marine Combat Training
MCTEEP	Marine Corps Training Exercise Employment Plan
MCTSSA	Marine Corps Tactical System Support Activity
MCWL	Marine Corps Warfighting Laboratory
MDL	MAGTF Data Library
MDSS	MAGTF Deployment Support System
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEP	Mobile Electric Power
MEP	Marine Enhancement Program
MEU	Marine Expeditionary Unit
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)
MEWSS	Mobile Electronic Warfare Support System
MEWSS-PIP	Mobile Electronic Warfare Support System-Product Improvement Program

MFK	Mobile Field Kitchen
MHE	Materials Handling Equipment
Mhz	Megahertz
MIIDS	Military Integrated Intelligence Data System
MILCON	Military Construction Navy
MILES	Multiple Integrated Laser Engagement System
MILSTAR	Military Strategic and Tactical Relay
MLA	Medium Lift Alternative
MLRS	Multiple Launch Rocket System
MLS	Marine Load System
MMS	Marine Mammal System
MNS	Mission Needs Statement
MOA	Memorandum of Agreement
MOB	Mobile Offshore Base
MOL	Marine on Line
MOLLE	Modular Lightweight Load Carrying Equipment
MOOTW	Military Operations Other than War
MOPP	Mission Oriented Protective Posture
MORE	Military Operations in a Riverine Environment
MOS	Military Occupational Specialty
MOUT	Military Operations on Urbanized Terrain
MPF	Maritime Prepositioning Force
MPF(E)	Maritime Prepositioning Force (Enhanced)
MPF(F)	Maritime Prepositioning Force (Future)
MPIM	Multi-Purpose Individual Munition
MPMC	Military Personnel Marine Corps
MPS	Maritime Prepositioning Ships
MPSRON	Maritime Prepositioning Ships Squadron
MRS	Mobility Requirements Study
MRRS	Multi-Role Radar System
MSBL	MAGTF Software Baseline
MSC	Major Subordinate Command
MSC	Military Sealift Command
MSE	Major Subordinate Element
MSR	Main Supply Routes
MTACCS	Marine Tactical Command and Control System
MTID	MILES Target Interface Device
MTT	Mobile Training Team
MTVR	Medium Tactical Vehicle Replacement
MTWS	MAGTF Tactical Warfare Simulation

MULE	Modular Universal Laser Equipment
MWR	Morale, Welfare and Recreation
MWS	Modular Weapon System
MWSG	Marine Wing Support Group
MWTS	Medium Weapon Thermal Sight
NALMEB	Norway Air-Landed MEB
NAPDD	Non-Acquisition Category Program Definition Document
NAS	Naval Air Station
NATO	North Atlantic Treaty Organization
NAVFLIR	Navigation Forward Looking Infrared
NBC	Nuclear, Biological and Chemical
NCA	National Command Authorities
NCO	Noncommissioned Officer
NCS-E(D)	Downsized Enhanced Net Control Station
NDI	Non-Developmental Item
NDP	National Defense Panel
NDSS	Network Data Storage Solution
NEF	Naval Expeditionary Force
NEO	Noncombatant Evacuation Operations
NESEA	Naval Electronics System Engineering Activity
NFCS	Naval Fires Control System
NFIP	National Foreign Intelligence Program
NIMA	National Imagery and Mapping Agency
NIPRNET	Nonsecure Internet Protocol Router Network
NIS	National Input Segment
NITF	National Imagery Transmission Format
NLW	Non-Lethal Weapon
NM	Nautical Miles
NMCB	Naval Mobile Construction Battalion
N/MCI	Navy/Marine Corps Intranet
NMS	National Military Strategy
NOS	Network Operating System
NRT	Near Real Time
NSE	Naval Support Equipment
NSF	Navy Stock Fund
NSFS	Naval Surface Fire Support
NTCS-A	Naval Tactical Command System Afloat
NTIS	Night Thermal Imagery System
NTS	Night Targeting System

NVG	Night Vision Goggles
O&MMC	Operation and Maintenance Marine Corps
O&MMCR	Operation and Maintenance Marine Corps Reserve
OCU	Operator Console Upgrade
OEO	Other Expeditionary Operations
OMFTS	Operational Maneuver from the Sea
ONR	Office of Naval Research
OPEVAL	Operational Evaluation
OPLAN	Operation Plan
OPNAV	Chief of Naval Operations
OPP	Offload Preparation Party
OPSEC	Operational Security
OPTEMPO	Operational Tempo
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
OST	Order Ship Time
OT&E	Operational Test and Evaluation
OTEIP	Overseas Tour Extension Incentive Program
OTH	Over-the-Horizon
OTV	Outer Tactical Vest
PAA	Primary Aircraft Authorization
PALCON	Pallet Containers
PANMC	Procurement of Ammunition Navy and Marine Corps
PASGT	Personal Armor System Ground Troops
PCS	Permanent Change of Station
PDEA	Power Driven Excavating Arm
PDR	Preliminary Design Review
PDRR	Program Definition and Risk Reduction
PEO	Program Execution Officer
PERSTEMPO	Personnel Tempo
PGM	Precision Guided Munitions
PGS	Precision Gunnery System
PGTS	Precision Gunnery Training System
PIP	Product Improvement Program
PITS	Portable Infantry Target System
PKI	Public Key Infrastructure
PLGR	Precision Lightweight Global Positioning Receiver
PLRS	Position Location Reporting System

PMC	Procurement Marine Corps
PME	Professional Military Education
POE	Port of Embarkation
POM	Program Objective Memorandum
PPBS	Planning, Programming and Budgeting System
PRG	Program Review Group
PSD	Propulsion System Demonstrator
PSYOPS	Psychological Operations
PWRMS	Prepositioned War Reserve Material Stocks
QDR	Quadrennial Defense Review
QOL	Quality of Life
QUADCON	Quadruple Containers
R&D	Research and Development
R2D2	Radio Reconnaissance Distribution Device
R3B	Resources and Requirements Review Board
RAC	Riverine Assault Craft
RACWETS	Riverine Assault Craft Weapons Engagement Training System
RAM	Reliability, Availability and Maintainability
RAM/RS	Reliability, Availability and Maintainability/Rebuild to Standard
RBA	Revolution in Business Affairs
RBE	Remain Behind Equipment
RBU	Rear Body Units
RCT	Repair Cycle Time
RDK	Rapid Deployment Kitchen
RDT&E	Research Development Test and Evaluation
RETS	Remoted Engagement Target System
RF	Radio Frequency
RFP	Request for Proposal
RHC	Ruggedized Handheld Computer
RIS	Range Instrumentation System
RLST	Remote Landing Site Tower
RMA	Revolution in Military Affairs
RMP	Reprogrammable Micro Processor
RMS	Remote Mine Hunting System
RO/RO	Roll-On/Roll-Off
ROC	Required Operational Capability
ROE	Rules of Engagement
ROWPU	Reverse Osmosis Water Purification Unit

RPMC	Reserve Personnel Marine Corps
RREP	Radio Reconnaissance Equipment Program
RRR	Residual Reserve Requirement
RRT	Radio Reconnaissance Teams
S&T	Science and Technology
SAAWC	Sector Anti-Air Warfare Coordinator
SAAWF	Sector Anti-Air Warfare Facility
SACC	Supporting Arms Coordination Center
SAPI	Small Arms Protective Insert
SANG	Saudi Arabia National Guard
SAR	Search and Rescue
SATCOM	Satellite Communications
SCI	Special Compartmented Information
SCN	Shipbuilding and Conversion Navy
SCT	Smart Card Technology
SEP	Soldier Enhancement Program
SESAMS	Special Effects Small Arms Marking System
SHADE	Shared Data Environment
SHF	Super High Frequency
SHORAD	Short Range Air Defense
SIDS	Secondary Imagery Dissemination System
SIE	Systems Integration Environment
SIGINT	Signals Intelligence
SINCGARS	Single-Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Router Network
SLEP	Service Life Extension Program
SLOC	Sea Lines of Communication
SMART-T	Secure Mobile Anti-Jam Reliable Tactical Terminal
SMAW	Shoulder-Launched Multipurpose Assault Weapon
SMCM	Surface Mine Countermeasures
SMCR	Selected Marine Corps Reserve
SNCO	Staff Noncommissioned Officer
SOA	Sustained Operations Ashore
SOC	Special Operations Capable
SOI	School of Infantry
SONET	Synchronization Optical Network
SPMAGTF	Special Purpose Marine Air-Ground Task Force
SPMAGTF(X)	Special Purpose MAGTF (Experimental)
SRAW	Short Range Antitank Weapon

SRB	Selective Reenlistment Bonus
SRI	Surveillance, Reconnaissance and Intelligence
SRIG	SRI Group
SRR	Strategic and Residual Requirement
SRU	Shop Replacement Units
STAMIS	Standard Management Information Systems
ST	Science and Technology
STAR-T	SHF Tri-Band Advanced Range Extension Terminal
STOM	Ship-to-Objective Maneuver
STOVL	Short Takeoff and Vertical Landing
SUBD	Small Unit Biological Detector
SURC	Small Unit Riverine Craft
SWA	Southwest Asia
SWMCM	Shallow Water Mine Countermeasures
TAD	Towed Artillery Digitization
T/M/S	Type/Model/Series
TACAIR	Tactical Aviation
TACC	Tactical Air Command Center
TACO	Tactical Communications
TACOM	U.S. Army Tank-Automotive & A
TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Module
T-AVB	Aviation Logistics Support Ship
TBD	To Be Determined
TBM	Tactical Ballistic Missile
TBMCS	Theater Battle Management Core System
TBMD	Theater Ballistic Missile Defense
TCAC	Technical Control and Analysis Center
TCC	Tactical Communications Center
TCIM	Tactical Communications Interface Module
TCO	Tactical Combat Operations
TCS	Tactical Control Station
TDCP	Tactical Data Communications Processor
TDMA	Time Division Multiple Access
TDN	Tactical Data Network
TDS	Tactical Data System
TEG	Tactical Exploitation Group
TEMP	Test and Evaluation Master Plan
TEPOP	Training and Education Point of Presence
TERPES	Tactical Electronic Reconnaissance Processing

	and Evaluation System
TESS	Tactical Engagement Simulation System
TETS	Third Echelon Test Sets
TFDSS	Total Force Decision Support System
THS	Target Handoff Subsystem
TIM	Toxic Industrial Materials
TLAM	Tomahawk Land-Attack Missile
TLDHS	Target Location Designation and Hand-off System
TOA	Total Obligational Authority
TOW	Tube-Launched Optically-Tracked Wire-Guided Missile
TPC	Topographic Production Capability
TPCS	Team Portable Collection System
TPFDD	Time Phased Force Deployment Data
TQG	Tactical Quiet Generator
TRAM	Tractor Rubber-tired Articulated Steering Multi-purpose
TRANSCOM	Transportation Command
TRAP	Tactical Recovery of Aircraft and Personnel
TRE	Tactical Receive Equipment
TRHS	Tray Ration Heating System
TRI-TAC	Tri-Service Tactical Communications
TRSS	Tactical Remote Sensor System
TSS	Target Sight System
TTP	Tactical Techniques Procedure
TUGV	Tactical Unmanned Ground Vehicles
TUV-M	Tactical Unmanned Vehicle-Medium
TWGSS	Tank Weapon Gunnery Simulator System
TWS	Thermal Weapon Sight
TWSEAS	Tactical Warfare Simulation Evaluation & Analysis System
UAV	Unmanned Aerial Vehicle
UB	Unified Build
UHF	Ultra High Frequency
ULCS	Unit Level Circuit Switch
UNMIH	United Nations Mission in Haiti
UNOSOM	United Nations Operations Somalia
UNPROFOR	United Nations Protection Force
UOC	Unit Operations Center
USACOM	United States Atlantic Command

USCENTCOM	United States Central Command
USEUCOM	United States European Command
USMC	United States Marine Corps
USPACOM	United States Pacific Command
USSOUTHCOM	United States Southern Command
UUV	Unmanned Underwater Vehicle
V/STOL	Vertical/Short Takeoff and Landing
VTOL	Vertical Takeoff and Landing
VHF	Very High Frequency
VSW	Very Shallow Water
VVT	Video Tele-training
WAN	Wide Area Network
WHNS	Wartime Host Nation Support
WMD	Weapons of Mass Destruction
WPN	Weapons Procurement Navy
WTI	Weapons and Tactics Instructor
WWMCCS	Worldwide Military Command and Control System
Y2K	Year 2000

***Published by Headquarters, U.S. Marine Corps
Programs and Resources Department
(Code RPA)***

***The Pentagon, Room 53675
Washington, D.C. 20380-1775***

*(703) 614-1503
DSN prefix 224*

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