X. PLANNED ARCHITECTURE FOR 2015~2020

A. INTRODUCTION

The Planned architecture of the USMC MAGTF evaluated in this study is built on the Current architecture extrapolated to the timeframe of year 2015 to year 2020. It is similar to the Current architecture, except with designated replacement of platforms for all air, land and sea platforms by ongoing development programs by the Department of Navy and the Marine Corps. The force structure remains largely functionally identical. The Planned architecture introduced here is also based on the same force structure required for the conventional littoral combat scenario designed exclusively for the ExWar studies. The distinctive difference in this architecture is the introduction of the Sea Basing concept, integrating the MPF (Future) ships in providing command and control, power projection and logistical support directly from the sea, bypassing the shore. Generally, the MEB still maintains the integrity of the CE, GCE, ACE, and CSSE.

B. STRUCTURE AND ORGANIZATION

The "notional" MEB structure and organization for the Planned architecture remains unchanged structurally except for some designated upgrades and replacement of equipment and platforms by ongoing programs. The Planned architecture "notional" MEB is now a tasked-organized force designed to respond to a wider range of operations. Ultimately, the integrity of the CE, GCE, ACE and CSSE concept of organization remains identical to the Current architecture.

1. Command Element (CE)

Similar to the Current architecture, the MEB CE is embedded in the MEF command element and identified by line number for training and rapid deployment. The MEB CE maintains the C2 and reconnaissance/-surveillance assets, sourced from the parent MEF staff with the Deputy MEF Commander as the MEB Commander. When the

MEB is activated, designated personnel and equipment assigned to the MEF command element form the MEB command element. The CE is the C2 headquarters of the MEF, commanding and coordinating all Marines activities at sea and ashore. If required, a MEB command element is capable of assuming the role of joint task force headquarters for small operations with additional MEF command element augmentation.

2. Ground Combat Element (GCE)

Similarly, the GCE is built on an Infantry Regiment as the main maneuver force, integrated with a wide range of ground combat support elements as follows to accomplish its ground combat missions. The AAV battalion from the current architecture is now being upgraded to become the Advanced Amphibious Assault Vehicle (AAAV) battalion, due to the replacement of the AAV.

a. 1 x Infantry regiment (3 x Infantry battalion)
b. 1 x Artillery battalion
c. 1 x Tank battalion
d. 1 x AAAV battalion
e. 1 x Combat Engineer battalion
f. 1 x Light Armored Reconnaissance Company
g. 1 x Headquarters battalion

3. Aviation Combat Element (ACE)

The ACE in the Planned architecture now comprises a new fleet of fixed and rotary wing aircraft, Anti-Air and Support squadrons to accomplish air combat missions as well as provide support for ground combat missions. The air platforms replacements include CH-46E with MV-22A, and AV-8B with JSF (F-35B) while the upgrades includes the new UH-1T, AH-1Z and F-18D. Otherwise, the structure and organization remains largely identical to the Current Architecture.

a. Marine Air Control Group (MACG)

The MACG mainly comprises headquarters elements, communications detachments and a LAAD battalion.

b. Marine Wing Support Group (MWSG)

The MWSG is formed by two Marine Wing Support Squadrons (MWSS), one for fixed wing and another for rotary wing aircraft. They provide technical support for all aircrafts within the ACE.

c. Marine Air Group (Fixed Wing) comprises

(1) 1 x Marine Aerial Refueler Transport Squadron (VMGR)

(2) 1 x Marine Tactical Electronic Warfare Squadron (VMAQ)

(3) 1 x Marine Attack Squadron (VMA)

(4) 2 x Marine Fighter Attack Squadron (VMFA)

(5) 1 x Marine All-Weather Fighter Attack Squadron (VMFA-AW)

d. Marine Air Group (Rotary Wing) comprises

2 x Marine Heavy Helicopter Squadron (HMH)

(6) 3 x Marine Medium Helicopter Squadron (HMM)

(7) 1 x Marine Light/ Attack Helicopter Squadron (HMLA)

4. Combat Service Support Element (CSSE)

The CSSE retains its critical role of a logistical support function undertaken by the BSSG. The BBSG comprises a wide range of service and support elements capable of supporting the entire MEB directly from the sea in all its missions. The main components of the BSSG remain as follow.

a. Headquarters battalion

b. Maintenance battalion

c. Supply battalion

d. Engineer Support battalion

e. Transportation Support battalion

f. Health Services Company

4. Amphibious Ships

The Amphibious fleet in the Planned architecture, supporting a MEB, remains fundamentally formed from 3 Naval Expeditionary Strike Group (NESG). However, in the Planned architecture, there are numerous significant upgrades to these amphibious platforms and hence the capabilities. Each NESG now consists of: 1) a new large-deck amphibious assault ship, the LHA(R); 2) the new amphibious transport dock of the LPD-17 class; 3) a dock-landing ship of the LSD-41 or LSD-49 classes. Additionally, there are 6 new MPF (Future) ships that will sustain the MEB 30 days and form the Sea Base at sea. LCU (R) and LCAC (H) also replace the LCU and LCAC that are launched from the amphibious ships. The Amphibious fleet in this architecture includes the following sea platforms.

a. 3 x LHA (R)
b. 3 x LSD-49
c. 3 x LPD-17
d. 16 x LCU (R)
e. 23 x LCAC (H)
f. 6 x MPF (F) ships

C. CAPABILITIES

The operational capabilities of the MEB in the Planned architecture essentially take on new dimensions with the new concept of Sea Basing, integrated with new equipment platforms replacements and upgrades. Nonetheless, the capabilities are still explicitly derived from the need to fulfill the new concept of OMFTS and STOM. The key tactical-level tasks and the capabilities to fulfill them are as follows:

1. Deploy forces/ Conduct maneuver

a. Sufficient sealift to rapidly position naval expeditionary forces and sustain power-projection operations once committed.
b. Capacity onboard amphibious ships to maneuver forces into an advantageous position and to conduct en route planning and coordination with supported and supporting forces
c. Ability to conduct all aspects of expeditionary maneuver warfare, including OMFTS and STOM
d. Ability to establish an AOA, provide tactical control within the defined battle space, and control/ coordinate surface and strike warfare
e. Surveillance, reconnaissance and reachback assets sufficient to provide active and passive hydrographic survey, surf observation, and climatological, meteorological, and tactical oceanographic analysis in support of amphibious operations
f. Amphibious ships capable of supporting independent air operations
g. Flexibility to conduct individual ship and split-ARG operations, as well as ATF operations independent of a CVBG
h. Ability to employ NSW units in advance-force and special operations
i. MPF capable of at-sea arrival and assembly of forces and equipment, eliminating the need to use airfields and ports in the immediate area of operations

2. Develop Intelligence

a. Access to a variety of sensor networks, both organic and supporting
b. Ability to task and focus sensor networks as required
c. “Reachback” to theater, joint and national intelligence assets
d. Rapid and thorough processing of intelligence data

e. A secure, accurate, and accessible database, available to all levels of command on “push/pull” basis

f. Timely and secure transmission to and from all levels of command

g. En route coordination and planning with surge and augmentation forces

3. Exercise Command and Control

a. Display and transmit data in real time to accurately develop a common operational picture.

b. Control efficient strikes, artillery and close air support operations.

c. Share information, coordinate and plan with forces closing from out of theater.

d. Plan, train and conduct virtual rehearsal en route to seamlessly transition to assault phase.

e. Plan, execute, exploit and defend against the various Information Warfare threats.

4. Employ Firepower

a. Use all fires from all assets – naval, joint and combined

b. Conduct offensive and defensive operations against an enemy, both at sea and in support of forces ashore

c. Coordinate all fire support functions from a seabase or ashore

d. Process targets.

e. Organize and integrate fire support assets.

5. Perform Logistics and Combat Service Support

a. Provide total asset visibility and conduct selective offload operations

b. Provide bulk liquids, particularly fuels and potable water quickly and efficiently to landing force elements during OMFTS/ STOM operations

c. Provide immediate maintenance and repair support for both Sea Based aviation and ground equipment

d. Provide all medical and dental support at sea, to include casualty operations and mortuary affairs, taking into account the type and volume of casualties that could result from WMD and urban combat operations

e. Support logistically individual ship, split-NESG, and independent ATF operations

f. Reconstitute the forces at sea and redeploy in support of other operations, in or out of theater.

g. Conduct underway replenishment operations and sustain naval expeditionary ships at sea

h. Conduct recovery and salvage operations.

6. Protect the Force

a. Self-protection measures that ensure each ship can operate independently in a threat environment.

b. Interoperability sufficient to become an integral part of a CEC force

c. Passive defensive capabilities to protect against CBR attack

d. The ability to remove battle space hazards, including decontamination and Explosive Ordnance Disposal (EOD) support

e. The ability to conduct rescue and recovery operations, including SAR and non-combatant evacuation.

f. The ability to ensure ship security in port using both active and passive measures.

D. CONCEPT OF OPERATIONS

In the Planned architecture, the 3 MEUs are still organized into 3 NESGs, consisting of 3 amphibious ships each. The 3 NESGs will sail to the launching area and prepare for operations ashore. The 6 MPF ships in the MPSRON based at Diego Garcia will proceed to a pre-selected location to form the Sea Base. Apart from the 3 NESGs, the other Marines of the MEB are flown into the AO vicinity by strategic airlift.

The Marines from the NESG will be projected ashore to the landing beach and objective area utilizing surface crafts and helicopters organic to the amphibious ships. STOM principles and concepts will be in place effectively, and there will be no 'iron mountain' and operational pause at the landing beach. The landing forces will proceed directly to the objective area from the landing beach. The MPF ships will form the Sea Base at a secure location at sea and supply the forces ashore directly from the Sea Base. Commercial ships or high-speed vessels will transfer subsequent re-supplies from CONUS to the Sea Base at regular intervals.

E. ADVANTAGES

a. BACKGROUND

Since the advent of OMFTS in 1996 and STOM in 1997, the Navy and Marine Corps team have focused their efforts to provide the war-fighters with the doctrine, training, and weapons systems, which will allow them to successfully conduct these concepts of operations. OMFTS and STOM heavily rely on maneuver warfare, both at sea, and on land. New capabilities in combat, logistics, and command and control are required by expeditionary forces to meet future threats and commitments.

The challenge presented by OMFTS and STOM has lead to the emerging of new platforms and weapons systems. Many of these platforms and weapons systems are the chronological replacements for older systems, but the requirements generated by OMFTS and STOM have been incorporated into the design philosophy of the new systems.

b. PLANNED PLATFORMS AND WEAPONS SYSTEMS

The Planned platforms and weapons systems include improved capabilities in self-defense, payload, speed, range, and logistics. Old and new platforms will be the integral part of a Sea Base. A Sea Base will be able to support the forces ashore, reducing the footprint, providing seamless logistical support, accurate command and control, and operational fires. The Planned architecture will be based around the Sea Base concept, and will include the following new platforms and weapons systems.

a. LHA (R) - The existing LHA will reach the end if its service life between 2011 and 2015. The current LHA (R) program is under the analysis of alternatives phase. The following paragraphs describe some of the most important requirements for the LHA (R) (LHA(R) ORD, 2002).

(1) ExWar (AMW) in an EMW/OMFTS/STOM Environment

The ship will direct the surface and air assaults; provide surface craft control, and exercise air control and coordination. The ship will facilitate the launch of aircraft with full mission loads. It will also allow concurrent fixed-wing, tilt-rotor, and rotary-wing flight operations, increase sortie generation rate, and aircraft maintenance and service capability. The design will incorporate improved day/night, adverse weather, precision approach and recovery systems accommodating both current and future aviation and surface assault assets including helicopters, MV-22, STOVL JSF, AAAV, LCAC, LCU(R), and MCM assets under improved day or night, adverse weather conditions. The ship should engage in both well deck and flight deck operations simultaneously. The ship will also plan, direct, and conduct all supporting arms, including NSFS, and coordinate missions conducted by Strike Warfare assets. The ship will act as an integrated, OTH floating distribution center and workshop with a maintenance capability to provide sustainment for MAGTF forces ashore. The ship will support rapid reconstitution and redeployment of naval combat power, including (at a minimum) support or reconstitution and redeployment of the landing force, under tactical conditions.

(2) Command and Control, C2

The C2 architecture must support planning, gaining, and maintaining situational awareness, decision-making, order generation, weapons direction, and ship system monitoring and control with uninterrupted voice, video, and data connectivity.

(3) Communications and Computers

Communications and computers must support secure, reliable, network-centric communications and data exchange, not only with the warfare mission commanders, but also with other surface ships, submarines, manned and unmanned aircraft. Tactical voice, video, and data exchange must occur at both line-of-sight and beyond. Improved, integrated data links must facilitate near real-time battle space awareness. The conduct of STOM by the landing force demands a ship-to-objective architecture for the ship, allowing receipt and rapid response to requests for intelligence, operations, or logistic support at distances approximating 200 NM.

(4) Intelligence, Surveillance, Reconnaissance (ISR)

ISR capabilities must remain technologically up to date and able to support operations ranging from a MEU(SOC) to a JTF. C2 staffs will rely heavily on reachback to theater and national facilities for development of intelligence products, access to imagery, and access to planning support tools and databases. The ship's system must support this reachback capability. C2 staffs will rely heavily on reachback to theater and national facilities for development of intelligence products, access to imagery, and access to planning support tools and databases. The ship's system must support this reachback capability. A robust cryptologic and intelligence planning, collection, production, and dissemination capability will provide Navy and landing force commanders with: timely indications and warning of potential threats; real-time targeting information for naval gunfire and strike operations against land targets; and real-time battle damage indications against selected land targets. In order to support both single-ship MAGTF operations and larger MAGTF operations, the ship must have intelligence capabilities, which enable it to provide the amphibious assault force and MAGTF forces ashore with intelligence, situational awareness, and other intelligence-related products.

(5) LHA(R) Air Operations

The ship must have the capability to operate UAVs In order to integrate more efficient flight deck operations and to accommodate the greater jet thrust and rotor wash of future aircraft to be embarked, consideration for the use of Jet Blast Deflectors and a launch ramp should be included in all new ship designs.

(6) Logistics in Support of the Amphibious Force

The LHA (R) must be equipped with replenishment equipment for safe, quick fueling and replenishment operations while underway. The ship must support the landing force's conduct of supply, maintenance, and service functions at sea. The ship will act as an integrated OTH, floating distribution center and workshop providing (with other ships of the force) sustainment to a MEU and short-term sustainment (until arrival of MPF (Future), AFOE, or theater support) for a MEB/MEF.

The ship will command and control the movement of supplies, craft, and aircraft within the Sea Base and to the shore, and coordinate the efforts of several ships within the Sea Base, including MPF (Future) ships delivering personnel and materiel directly ashore and to the other ships of the Assault Echelon (AE). It will receive supplies from MPF (Future) or other supporting ships for re-packaging and delivery to units of the amphibious force, afloat or ashore. The design should include the capability for logistic requirements processing asset visibility; logistics decision support, and rapid throughput. This includes the capability to move critical supplies, including large amounts of bulk fuel, ashore by air or surface. The ship will accommodate an increased embarked aviation footprint, and increase maintenance efficiency by expanding maintenance areas, provide increased aviation ordnance stowage, handling facilities, and equipment to accommodate the wide variety and quantity of air-delivered ordnance associated with the missions and aircraft mix of the ACE. The design must support reconstitution and redeployment of its embarked portion of the landing force and, in conjunction with other ships of the force, of the landing force as a whole.

b. LPD-17 - The new LPD-17 class is schedule to enter active service in 2005. LPD-17 will be replacing the older LPD-4 class. The new design includes enhanced self-defense capabilities such as Vertical Launching System non-existent in prior LPD's. The new ship is considerably larger (approx. 7,000 tons) which will allow it to carry more vehicles, equipment, aviation and gasoline fuel. New C2 capabilities will allow the ship to serve as a node in a network centric environment. The ship is also compatible with all existing and future rotary wing aircraft.

c. MPF Future - The MPF (Future) is perhaps the cornerstone for Sea Basing. Its mission and capabilities have been greatly modified to meet the Sea Basing requirements. The new MPF (Future) will be a lot more that a simple floating warehouse. New capabilities will include troop deployment, self-defense capabilities. The new MPF (Future) will have to provide maintenance facilities for vehicles and aircraft, and the ability to efficiently conduct operations to re-supply the Sea Base and forces ashore via air or surface craft. The following requirements list is taken from the MPF (Future) Mission Need Statement (Fink, 2002).

(1). Force Closure – en route arrival and assembly of forces
(2). Troop deployment
(3). Troop accommodations
(4). Shipboard assembly and staging area
(5). Aircraft basing
(6). ATF Interoperability – rapid reinforcement of the ATF assault echelon
(7). Air and surface assault craft interface
(8). Selective cargo offload capability
(9). Conduct sea-based logistics for Naval forces
(10). Selective retrieval for cube cargo
(11). Sea Base replenishment (from CLF or commercial shipping)
(12). Air and surface re-supply of ground combat forces

(13). Allow for rapid reconstitution and redeployment

(14). Sea base replenishment (from CLF or commercial shipping)

(15). Vehicle and air maintenance facility

(16). Joint C4I to allow interoperability

(17). Medical care consistent with the mission

d. LCAC (H) - The LCAC (H) will have approximately the same beam as current LCAC's, but it will be half its length longer, giving the new LCAC a 1.5 greater payload capacity than its predecessor. The LCAC (H) will also have improved engines, which will make it faster, and more reliable.

e. LCU (R) - The LCU (R) will replace the LCU 1600 Class Utility Craft. It will provide a technologically advanced, heavy lift, utility landing craft to complement the high speed, OTH ship-to-objective amphibious lift of the Mobility Triad required to support OMFTS. It is currently entering the Technology Development Phase with a desired Initial Operational Capability of FY06. LCU (R) will be able to operate from the well deck of any given amphibious ship including LHA, LPD, LSD-41, and the LPD-17. The craft will have higher operational speeds (current LCU 8kts, max 11), improved OTH lift (225 Short Tons) for assault personnel and a number of M1A1 tanks from amphibious ships to an unimproved beach. It will have Amphibious Task Force, Maritime Propositioned Forces (MPF), and Strategic Sealift compatibility. LCU (R) will have the capability to conduct sustained, independent operations for up to 10 days with an operational range of 1000 nautical miles. Automation and simplicity of design features will reduce LCU (R) manning requirements and minimize TOC. The craft will be simple, rugged, and reliable and designed with low maintenance features to reduce the craft's operational costs. The LCU (R) enhanced characteristics (yet to be defined) will greatly reduce ship-to-beach cyclic time, and will include a drive through design with forward and aft ramps to improve vehicle and cargo load out and discharge time when offloading amphibious and MPF shipping. The craft will have a secondary mission to serve as an alternative launch, recovery, and salvage platform for the Marine Corps new AAAV.

f. JSF - The JSF is a multi-role STOVL strike fighter to replace AV-8B and F/A-18A/C/D. The Marine variant distinguishes itself from the other variants with its short STOVL capability. JSF's integrated avionics and stealth are intended to allow it to penetrate surface-to-air missile defenses to destroy targets, when enabled by the F-22's air dominance. The JSF is designed to complement a force structure that includes other stealthy and non-stealthy fighters, bombers, and reconnaissance / surveillance assets. Key design goals of the JSF system include:

(1) Survivability

Radio frequency/infrared signature reduction and on-board countermeasures to survive in the future battlefield--leveraging off F-22 air superiority mission support

(2) Lethality

Integration of on- and off-board sensors to enhance delivery of current and future precision weapons

(3) Supportability

Reduced logistics footprint and increased sortie generation rate to provide more combat power earlier in theater

(4) Affordability

Focus on reducing cost of developing, procuring and owning JSF to provide adequate force structure.

g. MV-22 - The V-22 Osprey is a multi-engine, dual-piloted, self-deployable, medium lift, vertical takeoff and landing tiltrotor aircraft designed for combat, combat support, combat service support, and Special Operations missions worldwide. It will replace the Corps' aged fleet of CH-46E and CH-53D medium lift helicopters. The MV-22 has cruise speed of 240 knots, and can take up to 24 fully loaded combat troops to a range of 200 NM. The MV-22 can be air refuel to increase its range, and can carry up to 20,000 lbs.

h. AAAV - The AAAV will be capable of transporting 18 Marines and a crew of three over water at speeds of 29 mph to a range up to 65 miles; the design

uses a planning hull propelled by two water jets. On land, AAAV will achieve speeds of 45 miles an hour at ranges up to 300 miles, with cross-country mobility equal to an M1 Abrams tank. A smooth transition from water to cross-country movement has always been a difficult and dangerous task for amphibious vehicles. The General Dynamics AAAV design solves this problem by the automatic transfer of power from the high-speed water jets to the vehicle tracks. The command and control variant will provide access to information from satellite and computer-based intelligence sources, as well as from ships, aircraft and other vehicles, while controlling operations at sea or on land.

3. FINAL DISCUSSION

As mentioned earlier, many of the required capabilities needed to execute OMFTS and STOM have been incorporated into the design philosophy of new platforms and weapons systems. At the time these new systems will be fielded, there will be many legacy systems in use. At this time, there is no benchmark or analysis that will predict the effectiveness of OMFTS and STOM. The effects produced by the introduction of new platforms and weapons systems are mere speculation. The systems' enhanced capabilities can only support that the interfaces between old and new weapons systems will not degrade, and that the Expeditionary Warfare mission will improve with the integration of new equipment and capabilities. The results from the analysis will attempt to determine the interactions and synergies between legacy and new systems. The analysis will also attempt to determine the overall effect new platforms and weapon systems will have in the execution of OMFTS and STOM.