



The Multi-Mission Maritime Aircraft and Maritime Patrol and Reconnaissance Force Transformation

RADM Richard E. Brooks, USN

Operations Enduring Freedom and Iraqi Freedom have proven that conflicts facing our military forces today and in the future will be much different than those faced in the past. Consequently, transforming our military into a leaner, more flexible, high-tech force is imperative to ensure that the United States maintains a superior military advantage and is never outflanked by lesser-equipped opponents using new technologies and concepts of operation. This transformation involves not only the injection of new technologies, but also a greater integration of the services and a retooling of the acquisition process to encourage innovation and reduce the time to field new weapons systems. To facilitate transition and integration of the services into a fighting force capable of meeting 21st century challenges, the Secretary of Defense's Defense Planning Guidance for FY2004–2009 directed the services to develop Transformational Roadmaps. The Navy's Roadmap embodies concepts that are truly unique to the Navy–Marine Corps team and includes both the capabilities and processes that will guide these transformational efforts.

A PROUD HISTORY

Over the years the Maritime Patrol and Reconnaissance (MPR) community has been a transformational force as it has adapted to changes in mission requirements: anti-submarine warfare (ASW) from World War II through the Cold War to today; surface warfare (SUW) and Battle Group Support Operations as we faced the Soviet threat at sea; command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capability demonstrated during Desert Storm; and ongoing operations in Afghanistan, Iraq, and the waters surrounding the

region. The transformation of today, as we move toward the Multi-mission Maritime Aircraft (MMA), will truly be revolutionary in nature. The demonstrated capabilities of the MPR community will continue to be fielded with the current Aircraft Improvement Program (AIP) for the P-3 aircraft (Fig. 1), which completes the modernization of the force and takes it through the transition to MMA. Equipped with new data links and sensors, the AIP-equipped P-3 has once again played a key role in ASW, SUW, and ISR/C4I in joint operations in Bosnia, Kosovo, Afghanistan, and Iraq.



Figure 1. A P-3C Orion aircraft assigned to the “Tigers” of Patrol Squadron Eight (VP-8) flies along the coastline of Taormina, Sicily. The P-3C is a four-engine turboprop anti-submarine and maritime surveillance aircraft. (Photo by Photographer’s Mate Airman Shannon R. Smith.)

SEA POWER 21

The MMA Program addresses Sea Power 21 capabilities requirements for Sea Strike, Sea Shield, Sea Basing, and interoperable networks (FORCEnet) through its focus on MPR’s traditionally strong core skills in ASW and SUW, as well as an inherent ISR/C4I capability through introduction of modernization programs. Developed with a flexible data architecture, the platform will be capable of responding to combatant commanders’ evolving mission requirements well into the 21st century. As a forward-deployed or ready rapid response asset, MMA will often be first on the scene to prep the maritime battlefield and provide assured access through ASW and SUW dominance. Its flexible data architecture will also enable new concepts of operation (CONOPS) as it incorporates the long-dwell, persistent ISR, Broad Area Maritime Surveillance (BAMS) unmanned aerial vehicle (UAV) into its surveillance tactics.

The MMA–BAMS/UAV combination will provide dynamically retaskable, high/low altitude, long-endurance platforms with the capability to complete the kill chain. With information exchange through the platform as well as the MPR Tactical Support Center infrastructure, the marriage of MMA and BAMS/UAV will enable an increased warfighting capability by leveraging the strengths of both manned and unmanned assets as well as a reduction of manned MPR aircraft requirements. This combination of manned and unmanned capabilities, joined with planned MMA

C4I capabilities, will give naval and joint force commanders the battle space awareness information they need for successful land and maritime operations.

“FAST TRACK” ACQUISITION

The MMA Program also addresses the Navy’s requirements as a major participant in an ongoing initiative to reform the acquisition process. MMA is one of two candidates being considered by the Assistant Secretary of the Navy (Research, Development, and Acquisition) for a “fast track” acquisition program, which is designed to reduce acquisition cycle times through collaboration among major stakeholders in the acquisition process.

The goal of fast track is to deliver smarter, faster, and cheaper systems and support to the Fleet by streamlining processes, increasing

innovation, and improving communications through development of a multi-disciplinary knowledge management system. The MMA Program has adopted the latest acquisition concept of “spiral development” to bring increased capability to the Fleet in a timely, phased, and risk- and cost-managed manner. The MPR community is well organized to capitalize on and implement innovative ideas from the Fleet, as exemplified by significant Fleet input to the MMA requirements definition process.

COST SAVINGS

Replacements for MPR aircraft in the past, although not totally 1-for-1, have been more numbers-driven than capabilities-based. This is not the case with the introduction of the MMA, however. Applying lessons learned from the past with new technologies of today and tomorrow will result in an MMA that enables new CONOPS while reducing the number of required platforms, long-term manpower costs, and operating costs. In addition, the program will

- Revisit training concepts to consider networked simulators and distant learning labs
- Leverage worldwide contractor support and the latest advanced commercial logistics support strategies
- Facilitate the revitalization of the current reserve force structure to a better trained and supportable element of the active/reserve force team
- Use the latest acquisition streamlining processes to bring capabilities to the warfighters when needed

“Plug-and-play” technologies will also provide tremendous growth potential to meet emergent threats. New CONOPS spurred by the introduction of MMA will drive the MPR community to changes in the way it trains, mans, and deploys. Significant manpower savings will be realized with a smaller, but more capable, force size, enabling manpower realignment to more productive transformational functions such as UAV command and control and sensor data analysis.

The Navy is exploring options that offer a remarkable potential for manpower savings. These include commercial maintenance and logistics, fully funded parts acquisition to support higher availability, and decoupled cyclic squadron manpower and aircraft requirements from a squadron’s primary aircraft authorized (PAA). In the last case, manpower and assigned aircraft would be closely matched to a squadron’s varying requirements throughout its training and deployment cycle. Full PAA and manning would not likely be reached until a squadron is well along in the training cycle and then carried through deployment.

CORE COMPETENCIES

Anti-Submarine Warfare

As ASW is a core Navy mission area, MMA inner- and outer-zone ASW protection is critical to assured access for both Carrier Strike Groups (CSGs) and Expeditionary Strike Groups (ESGs) against hostile submarine and surface threats. Since the battle space for tomorrow’s CSGs and ESGs may often be in waters not supported by cueing sources of the past, MMA will employ a multi-spectrum suite of acoustic (both passive and active) and nonacoustic ASW sensors capable of large-area self-cueing and targeting, thus denying, disrupting, or destroying modern-day undersea threats in both the open ocean and littorals. Once on station, MMA will be able to execute the entire kill chain, from cue to kill. MMA’s acoustic suite will benefit from today’s transition from a predominantly passive acoustic search to an approach with increased emphasis on active, large-area, multi-static search while maintaining the expertise to classify and track using passive acoustics. The formidable MMA nonacoustic suite will bring a highly capable radar system, magnetic sensors with dramatically increased search rates, and other systems.

To complement the acoustic and nonacoustic sensors, MMA’s connectivity will ensure that it is a major force in the common undersea picture. The forward-deployed, long-range, long dwell and responsiveness of MMA, with its extensive ASW sensors, will make it a particularly effective platform for two purposes: (1) to support undersea dominance and extend the warfighting reach for rapidly maneuvering battle groups during power projection missions, and (2) to defend CSGs and ESGs in off-shore operating areas.

Anti-Surface Warfare

Sensors that provide an ASW capability also are effective in SUW. When required, MMA will enable maritime superiority against surface ships with search sensors capable of long-range detection, classification, and combat identification. MMA’s SUW sensor suite will allow it to be used effectively in a surface combat air patrol role to a CSG or ESG, as a gate-guard around choke points or harbors, for defense of sea lines of communications, and in coordinated strike operations with other air, surface, or subsurface units.

C4ISR

The MMA will be a rapidly deployable force capable of operating independently in the far reaches of the world’s oceans or in coordination with naval, joint, or allied forces. Its superior connectivity ensures MMA a major role in FORCEnet as a key airborne node. MMA’s projected state-of-the-art communications and data links have the potential to act as sensors and provide the airborne node necessary for the Navy’s network-centric C4ISR architecture of the common undersea and common operations pictures. This capability will enable real-time, multi-channel command, control, communications, and intelligence links combined with onboard sensing, quick-look analysis, data fusing, and data dissemination to deliver timely information to naval, joint, or allied decision makers.

TRAINERS

The effective introduction of MMA to the Fleet will rely heavily on the early fielding of full systems and part-task trainers to both facilitate the transition to MMA and support follow-on squadron readiness training (Fig. 2). The fundamental MMA transformational training goal will be to give the warfighter the training and performance improvement tools necessary to efficiently reach and sustain combat readiness certification under a demanding operational schedule.

The complete MMA training package will be designed around the human performance role and consist of a networked training system to allow the aircrew to conduct full-spectrum training operations. This will include realistic mission rehearsal exercises and post-mission analysis that will provide aircrews with a competitive edge over known or potential adversaries.

Whenever possible, MMA will leverage off high-fidelity commercial and networked joint training facilities, incorporating the optimum blend of virtual, live, and constructive interfaces, including plug-and-play capabilities, to ensure joint interoperability and virtual range capabilities. The result will be a greatly improved process for achieving pipeline and squadron training goals, a better return from at-sea training, and consistently higher combat readiness.



Figure 2. The pilot of a P-3C Orion from Patrol Squadron Four Zero (VP-40), home based at Naval Air Station Whidbey Island, Washington, guides her aircraft on a routine mission over the Pacific. VP-40 is training with the USS *Nimitz* (CVN 68) Battle Group. (Photo by Photographer's Mate 1st Class Arlo K. Abrahamson.)

RESERVE INTEGRATION

MPR integration efforts in which active/reserve forces train and operate together on the same systems and aircraft will

- Increase total force effectiveness while reducing infrastructure
- Reduce manpower costs with more efficient use of available skills and experience
- Reduce total aircraft inventory while improving critical surge and mobilization capabilities

In the end, the MPR active/reserve team, which has always epitomized integration, will become even stronger.

SUMMARY

The MMA is both a transformational acquisition program and a transformation enabler. As an initial

fast track participant, it has a lead role in developing fast tracking and acquisition process tailoring, which ultimately will speed the delivery of new weapons systems to the Fleet. The integration and use of BAMS/UAVs with MMA will be the transformational bridge for development of the Navy's unmanned aviation force.

The MMA multi-sensor suite—initially baselined from current modernization programs implemented to maintain MPR superiority with the P-3—allows the development of new CONOPS to support ASW operations, ISR, and battle force command and control operations, particularly in the littoral where its active and optic sensors will be critical to maintaining surface and underwater dominance.

An open data architecture will allow MMA to be reconfigured for specific missions or will enable several missions to be performed simultaneously against a wide range of threats. In addition, it will allow new technology insertions to maintain pace with evolving threats. Populated with a robust C4I suite, the MMA will be a key node in the Navy's network-centric architecture as both an originator and relay of time-sensitive, critical targeting information to naval, joint, and coalition force commanders.

MMA acquisition represents a paradigm change from 1-for-1 platform replacement. Procurement will be based on performance specifications for capabilities replacement. Total force integration will result in more MPR combat capability with less infrastructure. In the end, that which does not directly contribute to warfighting capability will be closely evaluated and, as required, eliminated.