

NOT FOR PUBLICATION UNTIL RELEASED BY THE
SENATE ARMED SERVICES COMMITTEE
AIRLAND SUBCOMMITTEE

STATEMENT OF

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(RESEARCH, DEVELOPMENT AND ACQUISITION)

BEFORE THE

AIRLAND
SUBCOMMITTEE

OF THE

SENATE ARMED SERVICES COMMITTEE

ON

DEPARTMENT OF THE NAVY'S AVIATION PROCUREMENT PROGRAM

MAY 8, 2012

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Mr. Chairman, Senator Brown and distinguished members of the Airland Subcommittee, thank you for the opportunity to appear before you today to discuss the Department of the Navy's (DoN) Aviation programs. My testimony will provide background and rationale for the Department's Fiscal Year 2013 budget request for aviation programs aligning to our strategic priorities and budgetary goals.

The United States is a maritime nation with global responsibilities. For 236 years, our Navy and Marine Corps' persistent presence and multi-mission capability have been the representation of U.S. power across the global commons. Our naval tradition informs our decisions today, as the Navy and Marine Corps remain firmly in a forward posture for engagement and action, continuing to build on our ability to come from the sea to conduct our missions rapidly across the range of military operations. The Navy and Marine Corps is an agile strike and amphibious power projection force in readiness, and such agility requires that the tactical aviation arm of our naval strike and expeditionary forces remain strong.

The Fiscal Year 2013 DoN budget request, while less than was requested in Fiscal Year 2012, aligns with the new strategic guidance for the Department of Defense (DoD) and provides the Department with the best balance of naval aviation assets. Guided by the Defense Strategic Guidance, the Navy-Marine Corps team is built for war, capable of operating forward to preserve the peace, respond to crises and protect United States and allied interests. The force will be leaner, agile, flexible, ready and technologically advanced.

The Navy and Marine Corps are committed to the Joint Strike Fighter program in both the F-35B and F-35C variants. We have reduced the quantity of the Fiscal Year 2013 aircraft procurement request to minimize the number of aircraft the Department will have to modify for concurrency. This action funds the costs associated with concurrency from within the JSF program as well as reduces the Department's overall investment in the JSF Program. The budget also has optimized Unmanned Aerial Systems (UAS) investments across the DoN's portfolio and is developing a comprehensive and flexible portfolio of unmanned systems to meet a variety of maritime reconnaissance requirements. In 2012, the Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) development program began; while the MQ-8B Fire Scout aircraft demonstrated in-theater capability and follow-on MQ-8C upgrade have superseded the need for the Medium Range Unmanned Aerial System (MRMUAS) which was terminated in the Fiscal Year 2013 request. The Navy and Marine Corps continues to optimize our buying power through the use of multi-year procurements (MYP) of the F/A-18E/F, EA-18G, MV-22 and H-60 programs. We are recapitalizing our aging fleet of E-2C, EA-6B and P-3 aircraft with more capable and more supportable aircraft – the E-2D, EA-18G and P-8A. We are exploring alternatives and concepts for the recapitalization of the Executive Helicopter, the C-2A and the F/A-18E/F – we will do so with lean acquisition and optimized technology at an affordable cost.

The Fiscal Year 2013 President's Budget requests funding for 94 aircraft including 10 F-35 JSFs for both the Navy and the Marine Corps, 13 P-8As to replace the aging current Anti-Submarine Warfare and maritime patrol squadrons, 17 MV-22 tilt-rotor aircraft, 26 F/A-18E/F fighter attack planes, 12 EA-18G to complete the replacement of the EA-6B, 5 E-2D Advanced Hawkeyes and 11 Unmanned Aerial Vehicles (UAV). The DoN has also requested funds for the continued development of the Broad Area Maritime Surveillance (BAMS) unmanned system and for the

demonstration of the Navy Unmanned Combat Aerial System (N-UCAS). The DoN Fiscal Year 2013 aircraft program budget request is funded for planned program execution throughout the Future Years Defense Program (FYDP).

TACTICAL AVIATION (TACAIR)

TACAIR Inventory Management

In 2010, we estimated the DoN Strike Fighter Shortfall (SFS) to be about 100 aircraft, but the net effect of the Fiscal Year 2013 President's Budget, which includes restructuring the F-35B/C ramp, along with the impact of reduced operational rates and force structure requirements, put the DoN's projected shortfall at a manageable level below 65 aircraft in the 2020's.

While the SFS continues to fall within the manageable levels throughout the DoN, the Marine Corps may experience elevated operational risk in the 2020's if the predicted shortfall comes to fruition. Over the past two Presidential Budgets, the Marine Corps TACAIR transition completion has extended from 2023 to 2031. This eight year slide has forced the Marine Corps to evaluate inventory availability amongst its Harrier and Hornet fleet in the later years and adjust its transition priorities and timing. The last active Marine F/A-18 squadron is currently scheduled to transition in 2027, and the current F/A-18 reserve squadron does not receive its F-35's until the year 2030. The Harriers were expected to complete their transitions in 2022 in the Fiscal Year 2011 President's Budget, and then 2026 in Fiscal Year 2012 President's Budget. The Harriers are now planned to remain in service through 2030 due to reduced F-35 ramp rates and the fact that they have more flight hour life remaining than the Hornets.

As legacy F/A-18 squadrons are reduced, the service shortfall number must be considered in proportion to the primary mission aircraft inventory requirement. Due to a lower number of F/A-18 squadrons in the 2023 to 2026 timeframe, the shortfall number associated with the Marine Corps will have a more significant impact on their few remaining F/A-18 operational squadrons.

Additionally, the AV-8B will operate with a shortfall of ten aircraft in Fiscal Year 2012, reaching twelve aircraft during Fiscal Year 2013, based on attrition. One AV-8B squadron will be retired at the end of Fiscal Year 2013 to meet USMC manpower reductions, allowing the remaining squadrons to operate without a shortfall. The Navy will transition three additional squadrons from F/A-18C to F/A-18E and then redistribute those F/A-18C aircraft amongst the DoN requirements.

The DoN continues to meticulously manage the fatigue life and flight hours of our tactical aircraft. Since 2004, we have provided fleet users guidance and actions to optimize aircraft utilization rates while maximizing training and operational opportunities. The Inventory Forecasting Tool (IFT) projects the combined effects of transition plans, attrition, and pipeline requirements on the total strike fighter aircraft inventory. The IFT is updated in conjunction with budget submittals to provide forecasts of the strike fighter inventory compared to the requirements. The tool utilizes these critical variables to project future inventories – F/A-18E/F and F-35B/C deliveries, force structure, aircraft usage rates, structural life limits, depot

turnaround time, Fatigue Life Expenditure (FLE), arrested and field landings, and catapult launches.

F-35B/F-35C Lightning II:

The Department of the Navy (DoN) remains firmly committed to both the F-35B Short Take-Off and Vertical Landing (STOVL) variant and the F-35C Carrier Variant (CV) of the Joint Strike Fighter (JSF) program, as they are essential to our immediate and long-range Navy and Marine Corps aviation strategy and the nation's security. F-35 will supplant the DoN's aging Tactical Aviation (TACAIR) fleet by replacing the Navy and Marine Corps legacy F/A-18A-D Hornet and the Marine Corps AV-8B Harrier and EA-6B Prowlers. The incorporation of F-35B and F-35C aircraft into our naval force will provide the dominant, multi-role, fifth-generation capabilities that are essential across the full spectrum of combat operations to deter potential adversaries and enable future naval aviation power projection.

The F-35B STOVL variant combines the multi-role versatility and strike fighter capability of the legacy F/A-18 with the basing flexibility of the AV-8B. The Marine Corps will leverage the F-35B's sophisticated sensor suite and very low observable (VLO) fifth-generation strike fighter capabilities, particularly in the area of data collection and information dissemination, to support the Marine Air Ground Task Force (MAGTF) well beyond the abilities of today's MAGTF expeditionary attack, strike and electronic warfare assets. Having these capabilities in one aircraft will provide the joint force commander and the MAGTF commander unprecedented strategic and operational agility. Similarly, the F-35C CV variant complements the F/A-18E/F Block II and EA-18G in providing survivable, long-range strike capability and persistence in an access-denied environment. Together, the F-35B and F-35C will provide the Expeditionary Strike Group and Carrier Strike Group commanders a survivable, "day-one" strike capability in a denied access environment with the tactical agility and strategic flexibility to counter a broad spectrum of threats and win in operational scenarios that cannot be addressed by current legacy aircraft.

The overall F-35 development program has been re-planned and is now resourced with adequate margin and realistic planning factors to complete System Development and Demonstration (SDD). Key activities that supported the re-plan included the development of an Integrated Master Schedule (IMS), execution of a Schedule Risk Assessment (SRA), and completion of the Integrated Baseline Review (IBR). Under these efforts, the Department of Defense revised flight test rates, established longer software development spans, included revised systems engineering processes, and established new performance measurements. This plan has strong support within the Department of the Navy as we believe it places the development program on sound footing towards delivering full Block 3 capabilities.

In January 2011, Secretary Gates placed the F-35B on probationary status because it was experiencing significant unique technical issues. F-35B testing was decoupled from the other two variants, allowing the program to increase focus on F-35B-specific development issues while testing on the other variants progressed. All three variants improved their testing performance in 2011. In particular, the F-35B successfully completed more flights and more test points than planned, including the first F-35B shipboard suitability test and operations with BF-2

and BF-4 aboard the USS WASP. The F-35B is now demonstrating development, test, and production maturity comparable to and not substantially different from the other F-35 variants. With this data, SECDEF made the decision to lift STOVL from probation on January 20, 2012. As with the other variants, some additional technical issues have been identified on the F-35B since probation began. However, none of these issues rises to the level of significance of those that placed STOVL on probation, and they are consistent with the kind of discovery to be expected in any complex tactical aircraft development program. Similar F-35A and F-35C technical issues being discovered in test have been proactively addressed and are being resolved concurrent with flight test. The decision to lift probation will result in absolutely no reduction in DoN F-35B oversight or the level of attention given by the Department of Defense (DoD) to each of the JSF variants going forward.

DoD established the F-35 program with a planned measure of concurrent development and production that balanced cost, risk, and need for TACAIR modernization. Concurrency, however, is a transient issue in which risks progressively decline through the end of SDD. The F-35 program is currently experiencing changes driven by design maturity discoveries as ground test, flight test, and overall system qualification efforts proceed. As more testing is completed, concurrency risks are progressively reduced as the design is confirmed or issues identified requiring changes are incorporated. Earlier aircraft are open to a greater need for changes, and as succeeding Low-Rate Initial Production lots are built, their cumulative requirements for retrofit modifications decline.

F-35 sustainment costs remain a concern. The DoN continues to support the F-35 Joint Program Office in its disciplined approach to analyzing and reducing sustainment costs. While the JPO and the Services made progress in 2011, there is more work to do in this area and the focus remains. For example, over the next 12 months the JPO will complete the F-35 Business Case Analysis (BCA). The results from the BCA will assist the PEO in refining the current F-35 support strategy by identifying the best mix of existing Service/Partner Organic capabilities with that of the Industry team to develop the optimum long term best value F-35 support solution. The DoN, working in concert with the JPO, will analyze options outside of the PEO's span of control to reduce operating cost such as; reviewing basing options and the sequencing of those actions, unit level manpower/squadron size, and discrete sustainment requirements. Through these combined efforts, the Department believes the PEO can increase convergence on an affordable F-35 sustainment strategy that both meets the required level of Service/Partner performance and lowers the total life cycle cost of the overall program.

The Initial Operational Capability (IOC) for F-35B and F-35C have not yet been established and will be determined by each service, based on both the program's performance and how the service defines IOC. In general terms, for example, the Marine Corps F-35B IOC is defined as a squadron of ten aircraft able to execute the full range of TACAIR directed mission sets and to deploy and operate from F-35B compatible ships and austere expeditionary sites. The Marine Corps plans to achieve IOC with a multi-mission capable Block 2B aircraft as described in the JSF Operational Requirements Document (ORD)/Change 3. For the Navy F-35C, IOC is defined as a squadron of ten ORD compliant Block 3F aircraft that are ready to deploy and operate from CVNs after having completed Initial Operational Test and Evaluation (IOT&E).

The Marine Corps IOC for the F-35C will follow the Navy's lead to ensure capability symmetry onboard carriers.

The Fiscal Year 2013 President's Budget requests \$1.5 billion in Research, Development, Test & Evaluation (RDT&E,N) to continue the F-35 SDD program and \$2.7 billion in Aircraft Procurement, Navy (APN) for ten F-35 aircraft (six F-35B and four F-35C) with associated aircraft hardware and spares. These resource requirements fully align to the Secretary of Defense's F-35 program re-plan. Maintaining this rate, and an eventual optimum production ramp rate, is critical towards achieving F-35 affordability goals and preventing excessive expenditures on aircraft with limited service-life and decreasing operational relevance.

The DoN is aware of the many challenges that remain on the F-35 program. However, this aircraft is an essential future Navy/Marine Corps Aviation capability and the DoN is fully committed to the F-35B and F-35C variants of this program. The DoN continues to closely monitor all F-35 development, production, and sustainment to ensure that this capability is obtained at the lowest cost, at the earliest date possible, to meet our national security obligations.

F/A-18 Overview

The F/A-18 Hornets have consistently met readiness and operational commitments. There are 22 Navy Super Hornet squadrons with 440 F/A-18E/Fs; deliveries and squadron transitions will continue through 2016. There are 15 Navy and 13 Marine F/A-18 A-D squadrons with 625 legacy A-D Hornets. While the F/A-18A-Ds transition to the F/A-18E/F and F-35, the current inventory of F/A-18A-Ds will comprise more than half of the DoN's strike fighter inventory well into 2013. Super Hornets and legacy Hornets have conducted more than 148,000 combat missions since September 11, 2001. While deployed ashore and aboard our aircraft carriers at sea, F/A-18s have brought significant precision ordnance and laser-guided munitions to the fight, and have employed thousands of rounds of twenty-millimeter ammunition supporting forces during strafing runs. These aircraft continue to provide vital overwatch and direct support to our troops on the ground in combat overseas.

Both the legacy Hornet and the Super Hornet were procured with an objective of 20 years' time in service. The average legacy Hornet has exceeded that goal, while the Super Hornet is already at almost 30 percent of its expected 20 year life. It is reasonable to conclude, based on current trends that most aircraft will substantially exceed 20 years in service.

F/A-18 A/B/C/D (Legacy) Hornet

The Fiscal Year 2013 President's Budget request is \$79.6 million in APN for the continuation of SLEP, systems upgrades and obsolescence programs for the inventory of 625 legacy F/A-18 Hornets. Funds requested will procure and install center-barrel modifications and Service Life Extension Program (SLEP) kits required for extending the service life to 10,000 flight hours of select candidate F/A-18A-D aircraft. The High Flight Hour (HFH) inspections and SLEP modifications can extend the F/A-18A-D service life to 10,000 hours and mitigate the impacts of the SFS. Continued investment in Program Related Engineering (PRE) and Program Related

Logistics funds within the Operations and Maintenance, Navy accounts is critical for sustaining the combat relevancy of the DoN's legacy platforms through the TACAIR transition.

The Service Life Management Program (SLMP) monitors and improves the health of the F/A-18A-D fleet through analyses of TACAIR inventories and management of usage rates at the squadron level. 74 percent of the F/A-18 A-D fleet have over 6,000 flight hours while 32 aircraft have over 8,000 flight hours. To meet our operational commitments through mid 2020s, we will be required to extend the service life of at least 150 F/A-18A-D to 10,000 flight hours. The F/A-18 A-D Service Life Assessment Program (SLAP) has completed and we are identifying all of the inspections and modifications necessary to extend the airframe service life to 10,000 flight hours. Based upon those results, we are midway through a three-phased SLEP. SLEP Phase A identified the critical safety of flight locations that needed immediate inspection and identified notional repair concepts. SLEP Phase B categorized parts by criticality, and upgraded analytical tools for use by the Naval Air Systems Command (NAVAIR) and Original Equipment Manufacturer engineers to design repairs. SLEP Phase C will finalize all remaining Phase B work and develop inspections and modifications required to extend the service life of 150 legacy F/A-18s. Efforts to extend the life of the F/A-18 A-D's major subsystems and avionics, independent of the airframe, are also underway.

The Fiscal Year 2013 President's Budget request includes SLEP requirements for 150 airframes. The first aircraft were inducted in early Fiscal Year 2012. Although risk is inherent in extending the service life of an aircraft, the technical risk in developing modification kits to achieve the goal of 10,000 flight hours is low. The Fleet Readiness Centers have the capacity to execute the required number of HFH inspections and SLEP modifications. Material availability and engineering disposition turn-around times influence depot efficiencies.

In order to maintain a tactical advantage, we will continue to procure and install advanced systems such as Joint Helmet-Mounted Cueing Systems (JHMCS), Multi-Function Information Distribution System (MIDS), APG-73 radar enhancements, Advanced Targeting FLIR (ATFLIR) upgrades, and LITENING for the Marines on selected F/A-18A-D aircraft.

F/A-18 E/F Super Hornet

The Fiscal Year 2013 President's Budget requests \$2.0 billion in APN for procurement of 26 F/A-18 E/F Block II (Lot 26-38) aircraft. The F/A-18E/F continues to transition into the fleet, improving the survivability and strike capability of the carrier air wing. The Super Hornet provides increased combat radius and endurance, and a 25 percent increase in weapons payload over the legacy Hornets. The President's Budget request for Fiscal Year 2013 includes \$276.7 million in APN to implement commonality, maintain capabilities and improve reliability and structural safety of the Super Hornet fleet. The Super Hornet uses an incremental development approach to incorporate new technologies and capabilities: the JHMCS, ATFLIR with shared real-time video, Shared Reconnaissance Pod System (ShARP), MIDS data-link, Multi-Sensor Integration, & continued advancement of the APG-79 Active Electronically Scanned Array (AESA) radar.

The program continues to deliver on-cost and on-schedule and the last year of procurement to complete the Program of Record (POR) of 565 aircraft is planned for 2014. Production shutdown begins in mid-2012 at the sub-vendor level and concludes in 2016. A MYP contract for 124 (Fiscal Years 2010 through 2013) F/A-18E/F Super Hornets and EA-18G Growlers was signed on September 24, 2010. In December 2010, SECDEF added 41 E/F aircraft to the Fiscal Year 2012 President's Budget request in Fiscal Years 2012 through 2014. All Lot 30 (Fiscal Year 2006) and beyond F/A-18E/Fs and EA-18Gs have the APG-79 AESA radar system installed in production, and a retrofit program exists to modify 133 Lot 26-29 Block II aircraft with the AESA radar. More than 300 APG-79 AESA radars have been produced to date. The Navy plans to equip all 419 Block II Super Hornets with AESA radars, providing the Super Hornet a significant increase in detection range, lethality and survivability over the legacy Hornets. Successfully deploying since 2007, AESA radar equipped squadrons are highly valued by fleet commanders because of their ability to share tactical battle space management data with the non-AESA radar tactical aircraft in the carrier battle group. The F/A-18E/F and EA-18G with the APG-79 are force multipliers.

The Fiscal Year 2013 President's Budget includes a request for \$11.0 million RDT&E,N to support the F/A-18E/F SLAP study requirement. Currently, the F/A-18 E/F fleet has flown approximately 30 percent of the available 6,000 total flight hours; the remaining service life will not be adequate to meet operational commitments through 2035. In 2008, the Navy commenced a three phased F/A-18E/F SLAP to analyze actual usage versus structural test data and identify the feasibility of extending F/A-18E/F service life from 6,000 to 9,000 flight hours via a follow-on SLEP. The F/A-18E/F SLAP will define the necessary inspections and modifications required to achieve 9,000 flight hours and increase total and arrested landings, and catapults beyond currently defined life limits and is currently assessed as low risk. The SLMP philosophy has been applied to the F/A-18E/F fleet at an earlier point in its lifecycle than the F/A-18A-D, which will optimize FLE, flight hours and total landings aligning aircraft service life with fleet requirements.

Airborne Electronic Attack (AEA) / EA-6B Prowler

The Fiscal Year 2013 President's Budget request includes \$19.7 million in RDT&E,N for Electronic Warfare (EW) Counter Response; \$187.0 million RDT&E,N for Next Generation Jammer (NGJ); \$10.6 million RDT&E,N for MAGTF EW, \$50.0 million in APN for common Airborne Electronic Attack (AEA) systems; \$30.1 million in APN for all EA-6B series aircraft; and \$34.1 million APN for MAGTF EW.

Currently, 69 EA-6Bs in the Navy and Marine Corps support 64 operational aircraft in 13 active squadrons and one reserve squadron. This includes 37 Navy and Marine Corps Improved Capability (ICAP) II aircraft and 32 ICAP III aircraft. Following the final Navy EA-6B transitions to EA-18G in 2015, all ICAP III EA-6Bs will transfer to and be operated by the Marine Corps. The final retirement of the EA-6B from the DoN inventory will be by the end of 2019.

Marine aviation is on a path towards a distributed AEA system of systems that is a critical element in achieving the MAGTF EW vision: a composite of manned and unmanned surface, air,

and space assets, on a fully collaborative network providing the MAGTF commander control of the electromagnetic spectrum when and where desired. In development are the ALQ-231 Intrepid Tiger II communications jammer, UAS EW payloads, a Software Reprogrammable Payload and an EW Services Architecture to facilitate collaborative networked Electronic Warfare Battle Management.

The Intrepid Tiger II is intended to be carried on the AV-8B and eventually other fixed and rotary wing platforms and will provide direct AEA support to ground troops engaged in combat operations. Intrepid Tiger II development and procurement is in response to Marine Corps requirements for increased precision EW capability and capacity across the MAGTF and provides EW capability directly to tactical commanders without reliance upon the limited availability of the low density/high demand EA-6B Prowler.

The NGJ is new electronic warfare technology that replaces the 40-year-old ALQ-99 system and is designed to provide modified escort power in support of joint and coalition air, land, and sea tactical strike missions. NGJ is critical to the Navy's vision for the future of airborne electronic attack strike warfare. Funding is vital to maintain schedule, allowing the program to transition to the technology development phase and ensure timely start of the EA-18G long lead integration activities.

Airborne Electronic Attack (AEA) / EA-18G Growler

The Fiscal Year 2013 President's Budget request is \$1.1 billion in APN for procurement of 12 EA-18G aircraft and \$13 million in RDT&E,N for correction of deficiencies. The first EA-18G squadron deployed in an expeditionary role in November 2010 to Iraq and subsequently redeployed on short notice to Italy in March 2011 in support of Operation NEW DAWN (OND) and Operation UNIFIED PROTECTOR (OUP). The EA-18G received accolades from both U.S. Central Command (CENTCOM) and Supreme Headquarters Allied Powers Europe for the AEA's enabling contribution to the battlespace.

In 2009 the Navy began transition from EA-6Bs to EA-18Gs. The first carrier-based EA-18G squadron deployed in May 2011. All three active component Navy expeditionary squadrons and two of the 10 carrier based squadrons have completed transition to the EA-18G. The Navy will be divested of EA-6Bs by 2015. The program of record is for 114 EA-18G aircraft, of which 90 have been procured to date. The final procurement of EA-18Gs is planned for 2013. As directed by the Quadrennial Defense Review in 2009, SECDEF added 26 EA-18G aircraft to the program of record across the FYDP to increase joint force capacity to conduct expeditionary electronic attack. The EA-18G fleet has flown approximately five percent of the 7,500 total flight hours per aircraft and are meeting all operational commitments.

The Navy has completed an analysis of alternatives (AoA) to determine the best path forward for the NGJ. The NGJ system will replace the aging and limited inventory of ALQ-99 electronic warfare pods currently flown on the EA-18G and EA-6Bs and provide the DoD with the advanced comprehensive electronic attack capability required to outpace the threat.

E-2D Advanced Hawkeye (AHE)

The Fiscal Year 2013 President's Budget requests \$119.1 million in RDT&E,N for continuation of SDD and \$1.040 million in APN for five Full Rate Production (FRP) Lot 1 aircraft and advance procurement (AP) for Fiscal Year 2014 FRP Lot 2 aircraft.

The E-2D Advanced Hawkeye is the Navy's carrier-based Airborne Early Warning and Battle Management Command and Control system. The E-2D provides Theater Air and Missile Defense and is capable of synthesizing information from multiple onboard and off-board sensors, making complex tactical decisions and then disseminating actionable information to Joint Forces in a distributed, open-architecture environment.

Utilizing the newly developed AN/APY-9 Mechanical Electronic Scan Array radar and the Cooperative Engagement Capability system, the E-2D works in concert with surface combatants equipped with the Aegis combat system to detect, track and defeat air and cruise missile threats at extended range and provide Battle Group Commanders required reaction time. This system-of-systems architecture, known as Naval Integrated Fire Control-Counter Air, provides vital force protection and allows the Navy to safely project forces into the littorals and overland to ensure access in contested areas.

The E-2D Advanced Hawkeye program is in the Production and Deployment phase after the Defense Acquisition Board (DAB) approved Milestone C in June 2009, at which time the program received authorization for procurement of the first two lots of LRIP aircraft (LRIP Lot 1 is two aircraft and LRIP Lot 2 is three aircraft). The SDD flight test program is 100 percent complete and all Key Performance Parameter thresholds have been met. An Operational Test Readiness Review was successfully conducted on February 1, 2012, certifying entry into Initial IOT&E, and IOT&E will continue through August 2012. Both LRIP Lot 1 aircraft were delivered in 2011, and delivery of the three LRIP Lot 2 aircraft will be completed in 2013. A DAB for approval to procure the final two lots of LRIP aircraft, Lots 3 (five aircraft) and 4 (five aircraft), as well as AP for FRP Lot 1, was successfully held on in March 2011 and the respective contracts have been awarded. LRIP Lots 3 and 4 aircraft will be delivered in 2014 and 2015, respectively. From a cost standpoint, the Estimate at Complete has been stable for over 54 months and the program is on schedule for an FRP Decision in the first quarter of Fiscal Year 2013. All major acquisition milestones have been achieved on or ahead of schedule since program inception in 2003.

AV-8B Harrier

The Fiscal Year 2013 President's Budget requests \$38.7 million in APN funds to continue development of the AV-8B Readiness Management Program, Operational Flight Program and Avionics Weapons Systems Development and Integration, and Engine Life Management Program. The Fiscal Year 2013 President's Budget requests \$42.2 million in OCO procurement funding for Marine Corps expeditionary LITENING targeting pod upgrades installation of OCO-procured ALE-47 kits (improved aircraft self protection, expendable system).

The AV-8B continues to be deployed heavily in support of operational contingencies. Each Marine Expeditionary Unit (MEU) deploys with embarked AV-8Bs. As of 2012 the AV-8B, equipped with precision weapons, LITENING targeting pods with a video downlink to ROVER ground stations, beyond visual range air-to-air radar missiles, is a proven, invaluable asset for the MAGTF and joint commander across the spectrum of operations. In 2012, the AV-8B has received the H6.0 Operational Flight Program enabling full integration of the ALE-47 suite and Digital Improved Triple Ejector Rack increasing the smart weapon carriage capability from four weapons to ten. The Harrier out-of-service date has been extended from 2022 to 2030, based on current F-35B transition plans. As a result, the AV-8B program must focus on sustainment efforts to mitigate significant legacy inventory shortfalls, maintain airframe sustainment and address reliability and obsolescence issues of avionics and subsystems. Additionally, this aircraft must be funded to maintain combat relevance to include tactical datalink and sensor improvements in order provide continued operation in support of operational contingencies and transition qualified aircrew to the F-35. The current digital aided Close Air Support (CAS) technology installed on the AV-8B is obsolete.

Operation ODYSSEY DAWN confirmed the expeditionary advantages of STOVL capabilities by placing the Harrier as the closest fixed-wing asset to Libya. Such dynamic support slashed transit times to the battlefield by two-thirds and kept close air support aircraft on station without strategic tanking assets. Capability upgrades, obsolescence mitigation and readiness initiatives must be funded to ensure the AV-8B remains relevant, healthy and sustained through 2030.

ASSAULT SUPPORT AIRCRAFT

MV-22

The Fiscal Year 2013 President's Budget requests \$54.4 million in RDT&E, N for continued product improvements and \$1.5 billion in APN for procurement of 17 MV-22Bs (Lot 17) and \$95.9 million for continuation of follow-on block upgrades. Fiscal Year 2013 is the first year of the planned follow-on V-22 MYP contract covering Fiscal Year 2013-2017. The funds requested in the Fiscal Year 2013 President's Budget fully fund Lot 17 and procure long lead items for Lot 18 as well as Economic Order Quantity buys for Lots 18 - 21. The Marine Corps continues to field and transition aircraft on time. The APN request includes \$95.9 million to support the ongoing Operations and Safety Improvement Programs (OSIP), including Correction of Deficiencies and Readiness.

The MV-22B has been supporting the Marines continuously since October 2007, in extreme environmental conditions during thirteen deployments to Iraq, Afghanistan and aboard amphibious shipping. In February 2011, the V-22 fleet exceeded a total of 100,000 flight hours. The MV-22B squadrons in Afghanistan and the MEU are seeing mission capable rates in the seventy percent range and are performing every assigned mission. Additionally, the Osprey has the lowest Class A flight mishap rate of any USMC fielded tactical rotorcraft over the past ten years.

The effectiveness and survivability of this revolutionary, first-of-type MV-22B Osprey tiltrotor has been repeatedly demonstrated in combat. The rescue of a downed F-15E airman during

Operation ODYSSEY DAWN was an example of what the Navy and Marine Corps' expeditionary force brings our nation. As an integral part of that seaborne presence, the MV-22B was able to perform its part of this mission with unprecedented speed and agility. Twenty minutes from the time he was evading capture in hostile territory, the rescued pilot was safely back on American territory aboard USS KEARSARGE.

Under the existing MYP, Ospreys have been delivered under cost and on time. The fifth and final buy under the multiyear occurred in Fiscal Year 2012; the Fiscal Year 2013 President's Budget request includes provisions for a second MYP which builds on the successes of the first. This second MYP will procure 91 MVs over five years and will produce significant savings when compared to single year procurements. The stability it provides supports the Marine Corps' need to retire old aircraft and field new and better capabilities. Additionally, the stabilization of the supplier base encourages long-term cost reduction initiatives on the part of the prime contractors and their suppliers.

The introduction of this new tiltrotor capability into combat has provided valuable lessons with respect to readiness and operating costs. Improvements to both continue and are having a clear effect on increasing aircraft availability and decreasing flight hour costs. At the close of Fiscal Year 2011, the mission capability rate of the MV was up 19 percent over Fiscal Year 2010 and the cost per flight hour decreased 13 percent in the same period. Due to these cost reduction efforts, the V-22 program received the prestigious David Packard Excellence in Acquisition Award which recognizes exemplary performance and innovation acquiring and delivering products and capabilities to the warfighter.

To keep these improvements on track a readiness OSIP was introduced into the Fiscal Year 2012 President's Budget. This OSIP provides a stable source of crucial modification funding as the Ospreys continue to improve readiness and reduce operating cost.

The MV-22B capability is being increased and fielded over time via a block upgrade acquisition strategy. The great benefit of a fly-by-wire rotorcraft was very clear recently when the Osprey increased airspeed and lift by simply modifying the flight control software. Such improvements require thorough testing; Fiscal Year 2013 RDT&E,N funds will be utilized to complete a fully-instrumented test aircraft which will replace the existing test aircraft. The current test aircraft is five iterations behind the V-22 being flown today and requires hundreds of maintenance man-hours per flight hour to operate and maintain.

FIXED WING AIRCRAFT

KC-130J

The Fiscal Year 2013 President's Budget requests \$942 million in APN across the FYDP for procurement of eight KC-130J's and continued product improvements. Targeted improvements include propeller and air-to-air refueling hose reel reliability, aircraft survivability through advanced electronic countermeasure modernization and replacing Vietnam era flare dispensers used for battlefield illumination, greatly enhancing mission effectiveness.

The KC-130J Hercules achieved IOC in 2005 and has been fielded throughout our active force, bringing increased capability, performance and survivability with lower operating and sustainment costs to the Marine Air Ground Task Force. Forward deployed continuously in support of Operations Iraqi and Enduring Freedom since 2005, the KC-130J continues to deliver Marines, fuel and cargo wherever needed. In 2011 the KC-130J continued to be a force multiplier for the Marine Corps through its support to combat operations in Afghanistan, humanitarian and disaster relief efforts in Pakistan, Tunisia and Japan, tactical recovery of downed aircrew in Libya, and support to Marine Expeditionary Units worldwide.

In September 2010, the Marine Corps fielded the first bolt-on / bolt-off Harvest HAWK Intelligence, Surveillance and Reconnaissance (ISR)/weapon mission kit for the KC-130J, expanding the role of the MAGTF's tanker. With the mission kit installed, the KC-130J is capable of providing persistent close air support and multi-sensor imagery reconnaissance for our Marines in harm's way. Three mission kits have been fielded to date, with three more expected to field in Fiscal Year 2013.

The USMC has procured 47 KC-130Js, 32 aircraft short of the 79 aircraft program of record. Procurement of the program of record will allow us to fully outfit our active and reserve force with this unique, multi-mission assault support and refueling platform. The reserve component is programmed to begin transition from the legacy KC-130T aircraft to the more capable, more efficient KC-130J aircraft beginning in Fiscal Year 2015. This reserve component transition will begin with the aircraft requested in the Fiscal Year 2013 President's Budget. Delays in procurement would force the Marine Corps to sustain the KC-130T aircraft longer than planned at an increased cost.

P-8A Poseidon

The P-8A Poseidon recapitalizes the maritime Patrol Anti-submarine Warfare (ASW), Anti-Surface Warfare (ASUW) and armed ISR capability currently resident in the P-3C Orion. The P-8A combines the proven reliability of the commercial 737 airframe and avionics with an open architecture that enables integration of modern sensors and robust communications. The Fiscal Year 2013 President's Budget requests \$421 million in RDT&E, N for integrated development and associated testing and \$2.837 billion for procurement of 13 FRP P-8A Poseidon aircraft which are scheduled to begin delivery in May 2015. APN funding supports AP for the subsequent FRP procurement lot. The program is on track for IOC in late 2013 when the first squadron will have completed transition and is ready to deploy. The P-8A program is meeting all cost, schedule and performance parameters in accordance with the Acquisition Program Baseline.

In August 2010 the P-8A program surpassed Milestone C, authorizing the Navy to proceed with procurement of LRIP Lots 1, 2, and 3 for six aircraft in Fiscal Year 2010, seven aircraft in Fiscal Year 2011 and eleven aircraft in Fiscal Year 2012. The Navy awarded the LRIP Lot 1 contract in January 2011 and LRIP Lot 2 contract in November 2011. On March 2012, the first LRIP aircraft was delivered to Patrol Squadron 30 at NAS Jacksonville, Florida. The first three flight test aircraft are being flown at NAS Patuxent River, MD, in support of Integrated Test & Evaluation (IT&E). Two of three production representative aircraft have been accepted by the

Navy to support IOT&E. The third of these aircraft has been supporting integrated test and training in preparation for IOT&E and will be formally accepted by the Navy prior to commencement of IOT&E.

P-3C Orion

The legacy P-3C fleet continues to provide ASW, ASUW, and ISR support for Joint and Naval operations worldwide. In Fiscal Year 2013, \$148.4 million is requested for P-3C airframe and mission systems sustainment. Nearly one third (\$41.4 million) is for wing modifications to support the CNO's P-3 Fleet Response Plan, as well as supporting EP-3E requirements, which are executed within the P-3 Airframe Sustainment Program. Mission systems sustainment and modernization totals \$107 million to address numerous safety of flight and obsolescence issues. The P-3C is being sustained to maintain warfighting capability and capacity until completion of P-8A transition in Fiscal Year 2018.

The aircraft is well beyond planned fatigue life of 7,500 hours for critical components, with an average airframe usage of over 17,000 hours. Since February 2005, 14 aircraft grounding bulletins have impacted 118 P-3 aircraft. In December 2007, NAVAIR's ongoing RDT&E funded P-3 Fatigue Life Management Program determined that in addition to existing structural fatigue issues associated with the forward lower wing section (Zones 2-4), the lower aft wing surface (Zone 5) of the P-3 aircraft showed fatigue damage beyond acceptable risk resulting in the grounding of an additional 39 P-3 aircraft. As of February 2012, a total of 75 aircraft have been grounded for Zone 5 fatigue. P-3 groundings due to known material fatigue will continue for the remainder of the P-3 program, and unknown fatigue issues will continue to present persistent risk until P-8A transition is complete. A return to pre- December 2007 aircraft availability numbers was achieved in December 2010; 83 P-3C mission aircraft are available today. Preserving funding for Zone 5 and outer wing kits and installations is critical to sustaining the minimum number of P-3Cs until replaced by the P-8A. The Navy will continue to manage closely the service life of the P-3C through transition to the P-8A Poseidon.

EP-3 Aries Replacement/Sustainment

The EP-3E ARIES is the Navy's premier manned Airborne Intelligence, Surveillance, Reconnaissance, and Targeting (AISR&T) platform. The Joint Airborne SIGINT Common Configuration includes Signals Intelligence (SIGINT) spiral upgrades, which, in conjunction with Secretary of Defense and the ISR Task Force (ISR TF) surge efforts, are fielding a robust Multi-Intelligence (INT) capability inside the FYDP. Multi-INT sensors, robust communication, voice over IP and data links employed by the flexible and dependable P-3 air vehicle help ensure effective AISR&T support to conventional and non-conventional warfare across the current Range of Military Operations. Operating around the globe, the EP-3E continues to satisfy critical Joint, Combatant Commander, and Service airborne ISR priorities and requirements.

In Fiscal Year 2013, the President's Budget request is \$79.4 million in APN, including \$13.0 million for OCO to address EP-3E SIGINT and Communications capability upgrades and obsolescence. The APN request supports the FRP installations and procurements for communications intelligence modifications necessary to keep pace with the evolving threat. The

EP-3E program continues to modify aircraft with multi-intelligence capability to meet emergent classified requirements. Modifications are necessary to keep the platform viable until the EP-3 capabilities are recapitalized.

The Navy is in the process of developing the AISR&T family of systems construct to recapitalize the EP-3 AISR&T capabilities within existing of Program of Record platforms; BAMS, VTUAV, UCLASS, P-8, H-60, and E-2D. The strategy has been further refined to focus on module systems and payloads required for the Navy to conduct AISR&T on a variety of vehicles, providing the COCOM with scalable capability and capacity. An inclusive full spectrum approach of the Navy sea and shore based manned and unmanned platforms align with the CNO's priorities.

ASSAULT SUPPORT HELICOPTER

CH-53K Heavy Lift Replacement Program

The Fiscal Year 2013 President's Budget requests \$606 million RDT&E,N to continue SDD of the CH-53K. Since completing its Critical Design Review in July 2010, the CH-53K program began system capability and manufacturing process demonstration, and started fabrication of the first test aircraft. During Fiscal Year 2013, the program will continue work on manufacturing the various test articles needed to support developmental test activities to achieve the planned first flight of the CH-53K in 2014.

The new build CH-53K will replace the legacy fleet of CH-53D/E helicopters with an aircraft that provides the performance necessary to support our future warfighting requirements. The CH-53E Super Stallion provides unparalleled combat assault support to the MAGTF and is one of the Marine Corps' most-stressed aviation communities. CH-53s, providing vital lift of heavy equipment, supplies and troops, are currently deployed in Afghanistan, the Horn of Africa, and onboard ship with our MEUs. Since May 2011, CH-53D/Es have flown over 19,000 hours; carried more than 73,000 passengers and moved over thirteen million pounds of cargo in support of coalition forces in Afghanistan and the Horn of Africa while flying well above their programmed rates in austere, expeditionary conditions. The need for heavy lift support has increased substantially when compared to last year's numbers over the same reporting period. The only heavy lift helicopters deployed to Afghanistan, CH-53D/Es have performed combat external recoveries of five coalition helicopters during this period. Forward-deployed aircraft have been operating at up to three times the peacetime utilization rates.

To keep these platforms viable until the CH-53K enters service, the Fiscal Year 2013 President's Budget requests \$61.4 million for both near and mid-term enhancements, including Integrated Mechanical Diagnostic System, T-64 Engine Reliability Improvement Program kits, Directed Infrared Countermeasures, Critical Survivability Upgrade, and sustainment efforts such as Kapton wiring replacement. While these aircraft are achieving unprecedented operational milestones, they are nearing the end of their service life. The CH-53E is approaching 30 years of service and the CH-53D is scheduled to retire from active service in late 2012, after operating for almost forty years.

The new-build CH-53K will fulfill land and sea based heavy-lift requirements not resident in any of today's platforms, and contribute directly to the increased agility, lethality, and presence of joint task forces and MAGTFs. The CH-53K will transport 27,000 pounds of external cargo out to a range of 110 nautical miles, nearly tripling the CH-53E's lift capability under similar environmental conditions, while fitting into the same shipboard footprint. The CH-53K will also provide unparalleled lift capability under the high altitude, hot weather conditions similar to those found in Afghanistan, greatly expanding the commander's operational reach.

Maintainability and reliability enhancements of the CH-53K will improve aircraft availability and operational effectiveness over the current CH-53E with improved cost effectiveness. Additionally, survivability and force protection enhancements will increase protection dramatically, for both aircrew and passengers, thereby broadening the depth and breadth of heavy lift operational support to the joint task force and MAGTF commander. Expeditionary heavy-lift capabilities will continue to be critical to successful land- and sea-based operations in future anti-access, area-denial environments, enabling seabasing and the joint operating concepts of force application and focused logistics.

ATTACK AND UTILITY AIRCRAFT

UH-1Y / AH-1Z

The Fiscal Year 2013 President's Budget requests \$31.1 million in RDT&E, N for continued product improvements and \$824.1 million in APN for 28 H-1 Upgrade aircraft: 15 UH-1Y and 13 AH-1Z (includes one OCO) aircraft. The program is a key modernization effort designed to resolve existing safety deficiencies, to enhance operational effectiveness, and to extend the service life of both aircraft. The 85 percent commonality between the UH-1Y and AH-1Z will reduce lifecycle costs and logistical footprint significantly, while increasing the maintainability and deployability of both aircraft. The program will provide the Marine Corps 349 H-1 aircraft through a combination of remanufacturing and new production.

The H-1 Upgrades Program is replacing the Marine Corps' UH-1N and AH-1W helicopters with state-of-the-art UH-1Y and AH-1Z aircraft. These legacy aircraft have proven enormously effective over decades of heavy use, and as they reach the end of their service lives, we look forward to expanding utility and attack helicopter capabilities. The new "Yankee" and "Zulu" aircraft are fielded with integrated glass cockpits, world-class sensors, and advanced helmet-mounted sight and display systems. The future growth plan includes a digitally-aided, close air support (CAS) system designed to tie these airframes, their sensors, and their weapons systems together with ground combat forces and capable DoD aircraft. Low-cost weapons such as the Advanced Precision Kill Weapon System II (APKWS II) will increase lethality while reducing collateral damage.

The UH-1Y "Yankee" aircraft achieved Initial Operating Capability (IOC) in August 2008 and Full Rate Production (FRP) in September 2008. The "Yankee Forward" procurement strategy prioritized UH-1Y production in order to replace the under-powered UH-1N fleet as quickly as possible. The AH-1Z completed its operational evaluation (OT-II3C) in June 2010 and received approval for FRP in November 2010. As of April 6, 2012, 81 aircraft (58 UH-1Ys and 23 AH-

1Zs) have been delivered to the Fleet Marine Force; an additional 50 aircraft are on contract and in production. Lots 1-5 aircraft deliveries are complete and Lot 6 deliveries are progressing on schedule. To date, all aircraft deliveries since Lot 3 have been completed ahead of the contracted schedule date.

The AH-1Z achieved IOC in February 2011 and in November 2011, the first all-Upgrades (UH-1Y/AH-1Z) MEU departed on November 15, 2011 with the USS MAKIN ISLAND Amphibious Ready Group. The UH-1Y completed its first overseas deployment with the 13th MEU in July 2009 and has supported sustained combat operations in Operation Enduring Freedom (OEF) since November 2009. The fourth OEF UH-1Y deployment (nine aircraft) is on-going, and aircraft continue to meet required readiness goals. This deployment marks two years in OEF with the UH-1Y flying nearly 11,500 hours in support of combat operations. The aircraft continue to fly three times the normal continental United States (CONUS) based utilization rate in OEF, and increased sortie rates are expected in support of the 11th MEU. The combined UH-1Y/AH-1Z fleet has flown over 44,000 hours since first delivery in January 2007.

In December 2011, to address existing attack helicopter shortfalls, the Marine Corps decided to pursue an all AH-1Z Build New (ZBN) procurement strategy and leave AH-1W airframes in inventory rather than removing them to begin the remanufacture process. The transition to an all ZBN airframe strategy is planned to begin with Lot 10 (Fiscal Year 2013) as reflected in the current USMC program of record. The previous mix of 131 remanufactured AH-1Z and 58 ZBN aircraft has been revised to delivery of 37 remanufactured AH-1Z and 152 ZBN aircraft. The total aircraft procurement numbers remain the same at 160 UH-1Ys and 189 AH-1Zs for a total of 349 aircraft.

ANTISUBMARINE AND SUPPORT HELICOPTER

MH-60R and MH-60S

The Fiscal Year 2013 President's Budget requests \$843.1 million for 19 MH-60R aircraft including Advanced Procurement (AP) for 19 Fiscal Year 2014 aircraft and \$6.9 million RDT&E,N for continued replacement of the Light Airborne Multi-Purpose System MK III SH-60B and carrier-based SH-60F helicopters with the MH-60R. The RDT&E,N funds will continue development of the Mode V interrogation capability for the identification friend-or-foe system. The Automatic Radar Periscope Detection and Discrimination program, a fleet-driven capability upgrade to the APS-147 Radar, is scheduled for IOC in fourth quarter, Fiscal Year 2013.

The MH-60R is used in both ASW with its dipping sonar, sonobuoys and torpedoes and in the surface warfare (SUW) role with its Electronics Surveillance Measures system, multimode radar with inverse synthetic aperture radar, Forward Looking Infrared (FLIR) system and Hellfire missiles. It has demonstrated significant improvement in capability in the ASW and SUW capability roles over legacy systems. The MH-60R program achieved FRP in 2006 and the fifth MH-60R operational deployment is currently underway with HSM-77 aboard the carrier USS ABRAHAM LINCOLN (CVN 72). There are five operational Carrier Air Wing squadrons and two fleet replacement squadrons operating the MH-60R. Three additional air wing and two

Expeditionary operational squadrons will transition to the MH-60R by the end of Fiscal Year 2013.

The Fiscal Year 2013 President's Budget requests \$456.9 million in APN for 18 MH-60S aircraft including AP for 18 Fiscal Year 2014 aircraft and \$29.7 million in RDT&E,N funds for the MH-60S to continue development of the Organic Airborne Mine Countermeasures (OAMCM) (Block II) and the Armed Helicopter (Block III) missions. The MH-60S is the Navy's primary combat support helicopter designed to support carrier and expeditionary strike groups. The MH-60S has replaced three legacy Navy helicopter platforms. The basic MH-60S reached IOC and FRP in 2002. The Armed Helicopter configuration reached IOC in 2007 and OAMCM is scheduled to reach IOC with the LCS Mission Module in 2014. The fifth MH-60S operational deployment is currently underway with HSC-12 aboard USS ABRAHAM LINCOLN (CVN 72). MH-60S helicopters currently operate with self-defense equipment, crew-served weapons and Hellfire missiles. MH-60S configuration enhancements include Fixed Forward Firing Weapons that will begin fielding in 2012. There are five operational Carrier Air Wing squadrons, six Expeditionary squadrons, and two fleet replacement squadrons operating the MH-60S. One additional air wing squadron will transition to the MH-60S by the end of Fiscal Year 2013.

The Fiscal Year 2012 National Defense Authorization Act and Consolidated Appropriations Act included Congressional authority to enter into the joint Army UH-60M/HH-60M and Navy MH-60R/S helicopter MYP contract (MYP8) and the Navy MH-60R/S Mission Systems and Common Cockpit contract (MYP2).

EXECUTIVE SUPPORT AIRCRAFT

VH-3D/VH-60N Executive Helicopters Series

The VH-3D and VH-60N are safely performing the Executive Lift mission worldwide. As these aircraft continue to provide seamless vertical lift for the President and Vice President of the United States, the Department is working closely with HMX-1 and industry to sustain these aircraft until a Presidential Replacement platform is fielded. The Fiscal Year 2013 President's Budget requests an investment of \$58 million to continue programs that will ensure the In-service Presidential fleet remains a safe and reliable platform. Ongoing efforts include the Cockpit Upgrade Program for the VH-60N, Communications Suite Upgrade, Structural Enhancement Program and the Obsolescence Management Program. The VH-3D Cockpit Upgrade Program, a Fiscal Year 2012 new start program, will provide a common cockpit with the VH-60N and address obsolescence issues. Continued investments in the In-service fleet will ensure continued safe and reliable execution of the Executive Lift mission.

VH-71 / VXX Presidential Helicopter Replacement Aircraft

The Fiscal Year 2013 President's Budget includes \$61.1 million for continuing efforts on VXX, the follow-on program for presidential helicopters. The Fiscal Year 2013 request reflects a funding adjustment that is a result of re-phasing the VXX program.

The requirement for a replacement Presidential helicopter was validated by the Joint Requirements Oversight Council; the details and specifications on how the requirement will be

met safely and affordably have not yet been finalized. VXX activity in 2012 will focus on completing the update to the AoA, and to continue to develop an acquisition strategy that targets affordability, cost control and reduction of risk prior to the award any major contracts. The Navy will leverage the results from the risk and cost reduction activities associated with maturing technologies to not only improve the functionality and sustainment of the In-Service Presidential Helicopter fleet, but to also position the replacement program for optimal execution.

UNMANNED AERIAL SYSTEMS

MQ-4C Broad Area Maritime Surveillance (BAMS) UAS

The Fiscal Year 2013 President's Budget requests \$657.5 million RDT&E,N to continue SDD of the BAMS UAS, \$51.1 million in APN for procurement of long-lead materials for the first lot of low-rate initial production aircraft, and \$70.9 million in Military Construction to construct a Main Operating Base at NAS Jacksonville, as well as a Forward Operating Base and a maintenance training facility to support IOC. The Milestone B decision for the BAMS UAS program was achieved on April 18, 2008. The program is on schedule and will complete first flight this year, with Milestone C planned for Fiscal Year 2013. The BAMS UAS program will meet the Navy requirement for a persistent ISR capability. BAMS UAS is a large Group-5 system that will greatly enhance situational awareness of the battle-space and shorten the sensor-to-shooter kill chain.

The Navy procured two Air Force (USAF) Global Hawk (Block 10) UASs in Fiscal Year 2004 for demonstration purposes and to perform risk reduction activities for the BAMS UAS Program. This effort is known as the BAMS-Demonstrator (BAMS-D) program. In April 2011, Navy accepted three additional Block 10 aircraft from the USAF to be utilized as spare parts assets. BAMS-D UAS has been deployed to the CENTCOM theater of operations for over three years.

MQ-8B Vertical Takeoff and landing Unmanned Aerial Vehicle (VTUAV) and associated Rapid Deployment Capability (RDC) efforts

The MQ-8 Fire Scout is an autonomous vertical takeoff and landing tactical UAV (VTUAV) designed to operate from all air-capable ships, carry modular mission payloads, and operate using the Tactical Control System and Line-Of-Sight Tactical Common Data Link. Fire Scout has completed over 200 autonomous ship board take-offs and landings. The Fiscal Year 2013 President's Budget requests \$99.6 million RDT&E to continue development of an endurance upgrade (MQ-8C), integrate radar and integrate weapons on the MQ-8B, and \$133.8 million APN for the production of six Fire Scout MQ-8C aircraft and Ship Control Stations. The RDT&E budget includes funding to increase endurance and integrate specialty payloads to support the Special Operation Forces (SOF) mission using the RDC process (Approved AFRICOM JUONS) and satisfy a NAVCENT Urgent Operational Needs Statement 18-month Rapid Deployment Capability for the Weaponization of the MQ-8B. The MQ-8B aircraft quantity supports Littoral Combat Ship (LCS) missions, near-term SOF missions until the MQ-8C Endurance Upgrade is fielded and ISR TF demands in Afghanistan. Procurement of ship-based control stations is aligned with both the LCS mission and outfitting frigates (FFGs) and

other ships to support the SOF missions. The ship-based control station and other ship ancillary equipment is common between MQ-8B and MQ-8C. Production of the MQ-8C was included in the APN budget starting in Fiscal Year 2012. Commonality of avionics, software, and payloads between the MQ-8B and MQ-8C is being maximized. The primary difference between the MQ-8B and MQ-8C is in the commercial airframe provided for each variant. The MQ-8B uses the Schweizer 333 helicopter while the MQ-8C uses the Bell 407 helicopter. The MQ-8C will almost triple the MQ-8B endurance and greatly increase the payload capacity. At least 28 MQ-8C aircraft Endurance Upgrades are required to support the SOF mission and are included in the RDC. The MQ-8B system has performed a Military Utility Assessment (MUA) aboard USS HALYBURTON to evolve fleet concepts for operation of the system and successfully completed a two month SOF Proof of Concept evaluation in an operational environment. Fire Scout has been integrated into and is currently deployed aboard USS SIMPSON and deployments are in work for USS KLAHRING, USS BRADLEY, and USS SAMUEL B. ROBERTS to support SOF and Navy operations in 2012 and 2013. Fire Scout was deployed to Afghanistan in April 2011 to support the ISR Task Force with 300 hours per month of ISR video from an expeditionary facility. As of February 2012, Fire Scout has provided over 2,100 ISR flight hours in Afghanistan. The Afghan 90 day user assessment gave Fire Scout its highest grades in all categories, and the user has requested additional Fire Scout aircraft and spares to grow the requirement to 600 hours per month. The Fire Scout program will also continue to support integration and testing in all LCS-based mission modules. Navy continues to cooperate with the Coast Guard for their ship-based UAS planning.

Unmanned Combat Air System Carrier Demonstration (UCAS-D)

The Fiscal Year 2013 President's Budget requests \$142.3 million RDT&E to continue the Navy UCAS-D efforts to research a tactical jet-sized, carrier-suitable, low-observable-relevant, unmanned aircraft system. The UCAS-D program will demonstrate UCAS carrier operations and autonomous aerial refueling (AAR), and mature required technologies to technology readiness level (TRL)-6 in support of potential follow on unmanned acquisition programs. The aviation/ship integration portion of the program is meeting all technical objectives, with surrogate aircraft flights in vicinity of aircraft carriers (CV) completed in 2009 and 2010. In July 2011, the first ever unmanned coupled approaches to CVN landing were completed and integration data was gathered during F/A-18 surrogate testing aboard USS DWIGHT D. EISENHOWER (CVN-69). The UCAS-D contract was competitively awarded to Northrop Grumman in August 2007. The program was re-baselined in 2010 due to delays in the original contract schedule which was focused on early completion of UCAS-D objectives. The re-baselined schedule is executable within existing resources; completion of the carrier demonstration is planned for Fiscal Year 2013. The first X-47B (AV-1) completed its first flight February 4, 2011 and has flown a total of 16 envelope expansion flights at Edwards AFB, CA. AV-2 completed its first flight November 22, 2011. AV-1 completed transport to NAS Patuxent River, MD in December 2011 to begin check-outs and testing in support of carrier suitability and operations. Shipboard X-47B deck handling operations and flight operations in the vicinity of an aircraft carrier are scheduled to begin in 4Q 2012. Actual catapult launches, arrested landings and additional flight operations in the vicinity of a CV are scheduled to be completed in 2013. The latest AAR testing period was completed in January 2012 utilizing a manned surrogate aircraft, and AAR development and testing will continue throughout 2012 and 2013. The program is constrained by USN CVN schedules and planning. Currently the program is working

closely with USN and CVN leadership to reduce risk and align program and CVN operational schedules to best accommodate demonstration objectives. UCAS-D is an essential first step toward full-scale development of a carrier-suitable unmanned ISR/strike platform. Successful UCAS-D sea trials will set the stage for potential follow-on acquisition programs.

Medium Range Maritime UAS (MRMUAS)

The Fiscal Year 2013 President's Budget indefinitely defers the MRMUAS prior to initiation of Milestone A. OSD (AT&L) approved the MRMUAS Material Solution Analysis and authorized the start of an AoA and a draft Capability Development Document (CDD) in Fiscal Year 2011. The AoA and CDD drafting will be completed in Fiscal Year 2012. These documents will support the Navy's next generation of sea based Group 4 UAS and identify technology investments needed to improve the Navy's sea based UAS systems.

Tactical Control Station (TCS)

The Fiscal Year 2013 President's Budget requests \$9.1M RDT&E for the Tactical Control Station (TCS). TCS provides a standards compliant, open architecture, with scalable capabilities for command, control, of the VTUAV system. TCS completed the software transition from the Solaris operating system to the Linux operating system in 2011. The Linux operating system conversion will overcome hardware obsolescent issues with the VTUAV Solaris based Control Stations and provide lower cost software updates using DoD common application software. In addition, the TCS Linux upgrade will enhance collaboration with the Navy's future UAS common control station. The TCS program is also supporting the VTUAV weaponization, radar, and MQ-8C endurance upgrade RDC efforts. The TCS program has continually met schedule and cost goals over the last five years while delivering quality software. In Fiscal Year 2013, TCS will continue the VTUAV RDC efforts, support transitioning the Linux operating system software to a technology refreshed control station, enhance the VTUAV Ocean Surveillance Initiative for ships Automatic Identification System and sensor track generation, and develop an interface to an ISR Process Exploit Dissemination (PED) system. The PED system will facilitate imagery analysis and utilization by the host ship.

Cargo Unmanned Aerial System (CUAS)

The Fiscal Year 2013 President's Budget is not requesting funding for continued CUAS deployment in Fiscal Year 2013. The previous effort supported the USMC operational requirements captured in a Cargo UAS Joint Urgent Operational Needs (JUONS). The Marine Corps is assigned the lead service. Two vendors were awarded contracts in support of Cargo UAS development. The CUAS initiative is a MUA which will inform a follow-on program of record.

Lockheed Martin/Kaman KMAX Cargo UAS completed the Quick Re-action Assessment on time and was selected for the RDC. CUAS operations were started in November 2011 and are planned for six months with priced options for an addition six months. The CUAS is meeting the RDC goals and is also supporting the development of UAS concept of operations (CONOPS).

The purpose of the Cargo UAS capability is to develop CONOPS to “get trucks off the roads” in combat zones, minimizing the improvised explosive device threat to logistics convoys. The CUAS will provide a low risk, persistent, 24-hour capability for dispersed forces on the battlefield. This capability mitigates the requirement for manned ground vehicles to resupply forces in remote locations. The CUAS will also augment manned aviation assault support assets and airdrop methods when the weather, terrain, and enemy pose an unsuitable level of risk. Aerial delivery of cargo by the CUAS, between main logistical hubs and remote “spokes,” is being executed under the control of a ground control station at a main operating base and a remote terminal at the drop-off zone.

RQ-21A Small Tactical Unmanned Aircraft System (STUAS)

The Fiscal Year 2013 President’s Budget requests \$33.9 million in RDT&E,N (\$9.73 million Navy, \$24.2 million Marine Corps) and \$9.6 million in APN and \$27.6 million in PMC for 15 (five USN, 10 USMC) RQ-21A Integrator STUAS that will address Marine Corps and Navy ISR capability shortfalls currently supported by service contracts. This Group 3 UAS will provide persistent, ship and land-based ISR support for tactical-level maneuver decisions and unit level force defense/force protection missions. Milestone B and contract award occurred in July 2010. Milestone C and LRIP decisions are scheduled for the first quarter of Fiscal Year 2013. STUAS will enter into IOT&E 3rd Qtr Fiscal Year 2013.

RQ-7B Marine Corps Tactical UAS (MCTUAS)

The Fiscal Year 2013 President's Budget requests \$0.9 million RDT&E to continue development efforts and government engineering support and \$49.3 million in APN to support the continuation of congressionally mandated TCDL retrofits for RQ-7B Shadow units. USMC Shadow squadrons have seen continuous service in Iraq and Afghanistan since 2007. The USMC received its 13th RQ-7B Shadow system in first quarter Fiscal Year 2012, completing baseline fielding for four squadrons. The USMC Shadow systems are identical to Army Shadow systems, bringing interoperability and commonality between Army and Marine Corps unmanned aircraft units operating side-by-side in Afghanistan. An 18-month initiative to weaponize two USMC RQ-7B systems with a laser-guided projectile was started in first quarter Fiscal Year 2012.

Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System

The Fiscal Year 2013 President’s Budget requests \$122.5 million RDT&E for the UCLASS System efforts. The UCLASS system will enhance carrier capability and versatility for the Joint Forces commander through integration of a persistent and mission flexible unmanned aircraft into the Carrier Air Wing. In April 2011, the UCLASS initial capabilities document was approved by the Joint Requirements Oversight Council. The UCLASS system will provide persistent intelligence surveillance and reconnaissance (ISR) with precision strike in a range of mission including irregular warfare and major combatant operations environments. It will be sustainable onboard an aircraft carrier, as well as ashore, and will be designed to minimize increases in the logistics footprint of the current carrier air wing. The UCLASS system will have the ability to pass command and control information along with sensor data to other aircraft, naval vessels, and ground forces. Sensor data will be transmitted, in either raw or processed

forms, at appropriate classification levels, to exploitation nodes afloat and ashore. Interfaces will be provided with existing ship and land-based command and control systems, including ISR tasking, as well as processing, exploitation, and dissemination systems. The UCLASS system will achieve these capabilities through the use of a carrier-suitable, semi-autonomous, unmanned Air Segment, a Control System and Connectivity Segment, and a Carrier Segment.

WEAPONS PROGRAMS

Tactical Tomahawk BLK IV Cruise Missile Program

The Fiscal Year 2013 President's Budget requests \$308.97 million of Weapons Procurement, Navy (WPN) for procurement of an additional 196 BLK IV weapons and associated support, \$34.9 million of OPN for the Tactical Tomahawk Weapon Control System (TTWCS), and \$8.8 million in RDT&E for capability updates of the weapon system. WPN resources will be for the continued procurement of this versatile, combat-proven, deep-strike weapon system in order to meet surface and subsurface ship-fill load-outs and combat requirements. OPN resources will address the resolution of TTWCS obsolescence and interoperability mandates. RDT&E will be used to complete engineering, test, and transition of the Joint Multi-Effect Warhead System into the program production baseline. Since the submittal of the President's Budget request for 2012, Congress approved the Fiscal Year 2011 Omnibus reprogramming request for \$310M to replace the 221 missiles expended in Operation ODYSSEY DAWN. These additional missiles will be procured in Fiscal Year 2012. Due to constraints in the ceiling in the Fiscal Year 2012 contract, 56 missiles funded with Fiscal Year 2012 procurement funds will be added to quantities funded with Fiscal Year 2013 procurement funds (196) and will be ordered under the Fiscal Year 2013 contract.

Tomahawk Theater Mission Planning Center (TMPC)

TMPC is the mission planning segment of the Tomahawk Weapon System. Under the umbrella of TMPC, Tomahawk Command and Control System (TC2S) develops and distributes strike missions for the Tomahawk Missile; provides precision strike planning, execution, coordination, missile control and reporting; and enables Maritime Component Commanders the capability to plan and/or modify conventional Tomahawk Land-Attack Missile missions. The Fiscal Year 2013 President's Budget requests \$2.5 million RDT&E and \$42.9 million OPN for continued TMPC system upgrades and support. These resources will complete fielding of TC2S Version 4.3, complete the upgrade and testing to TC2S Versions 5.0, begin the re-design of legacy software code in the Tomahawk Planning System, a TC2S component, to increase system security, and initiate the upgrade to TC2S Version 6.0. These planned upgrades will improve joint interoperability, mission planning time and system usability. These resources are critical towards supporting 125 planning sites, to include Cruise Missile Support Activities; Tomahawk Strike and Mission Planning Cells; Carrier Strike Groups, Command and Control Nodes and Labs/Training Classrooms.

Sidewinder Air-Intercept Missile (AIM-9X)

The Fiscal Year 2013 President's Budget requests \$21.1 million of RDT&E and \$80.2 million of WPN for this joint DoN and USAF program. RDT&E will be applied toward AIM-9X/BLK II developmental/operational tests and requirements definition for Joint Staff directed Insensitive Munitions requirements, as well as initial AIM-9X/Block III development activities. WPN will be for production of a combined 150 all-up-rounds and Captive Air Training Missiles and missile-related hardware. The AIM-9X Sidewinder missile is the newest in the Sidewinder family and is the only short-range infrared air-to-air missile integrated on USN/USMC/USAF strike-fighter aircraft. This fifth-generation weapon incorporates high off-boresight acquisition capability and increased seeker sensitivity through an imaging infrared focal plane array seeker with advanced guidance processing for improved target acquisition; and advanced thrust vectoring capability to achieve superior maneuverability and increase the probability of intercept of adversary aircraft.

Advanced Medium-Range Air-to-Air Missile (AMRAAM/AIM-120)

The Fiscal Year 2013 President's Budget requests \$2.9 million for continuing RDT&E efforts and \$102.7 million for production of 67 captive air training missiles and missile-related hardware. AMRAAM is a joint Navy and Air Force missile that counters existing aircraft and cruise-missile threats. It uses advanced electronic attack capabilities at both high and low altitudes, and can engage from beyond visual range as well as within visual range. AMRAAM provides an air-to-air first look, first shot, first kill capability, while working within a networked environment in support of the Navy's Theater Air and Missile Defense Mission Area.

Small Diameter Bomb II (SDB II)

The Fiscal Year 2013 President's Budget requests \$31.1 million of RDT&E for the continued development of this joint DoN and USAF weapon and bomb-rack program. SDB II provides an adverse weather, day or night standoff capability against mobile, moving, and fixed targets, and enables target prosecution while minimizing collateral damage. SDB II will be integrated into the internal carriage of both the Navy (F-35C) and Marine Corps (F-35B) variants of the Joint Strike Fighter and will be compatible with the BRU-61/A miniature-munitions carriage. The Joint Miniature Munitions Bomb Rack Unit (JMM BRU) BRU-61A/A is being developed to meet the operational and environmental integration requirements for internal bay carriage of the SDB II in the F-35B and F-35C. SDB II entered Milestone B in August 2010 and successfully completed its Critical Design Review in January 2011. JMM BRU will enter Technology Development in May 2013.

Joint Standoff Weapon (JSOW)

The Fiscal Year 2013 President's Budget requests \$5.5 million of RDT&E for continued JSOW-C-1 test activity and \$127.6 million of WPN for production of 280 All-Up Rounds. The JSOW-C-1 variant fills a critical capability gap by adding maritime moving-target capability to the highly successful baseline JSOW-C program. JSOW-C-1 targeting is achieved via a data-link and guidance software improvements.

Advanced Anti-Radiation Guided Missile (AARGM)

The Fiscal Year 2013 President's Budget requests \$7.0 million of RDT&E for the follow-on development and test program and \$86.7 million of WPN for production of 100 All-Up-Rounds and Captive Training Missiles. The AARGM development program transforms the legacy High-Speed Anti-Radiation Missile (HARM) into an affordable, lethal, and flexible time-sensitive strike weapon system for conducting Destruction of Enemy Air Defense (DEAD) missions. AARGM adds multi-spectral targeting capability and targeting geospecificity to its supersonic fly-out to destroy sophisticated enemy air defenses and expand upon the HARM anti-radiation missile target set. The program was approved for its third LRIP contract in October 2012. IOT&E re-started on August 10, 2011 and fired the last live test shots in March 2012. IOC on the F/A-18C/D aircraft is planned for the third quarter of Fiscal Year 2012. A Full Rate Production decision is planned for the second half of Fiscal Year 2012.

Hellfire Weapon System

The Fiscal Year 2013 President's Budget requests \$91.5 million, including \$17.0 million of OCO funding, for 1,210 Hellfire all-up-round weapons. Hellfire procurements are a mix of thermobaric, blast/fragmentation, and anti-armor warheads, to provide maximum operational flexibility to our warfighters. This procurement quantity will bring the inventory total to approximately sixty-percent of the munitions requirement and will increase our training assets. The DoN continues to support legacy Hellfire weapons as well as procure and support technology enhancements that will provide the warfighter the flexibility to prosecute new and emerging threats. The Hellfire missile continues to be a priority weapon for current military operations as it enables our warfighters to attack targets in the caves of Afghanistan, as well as to prosecute military operations in urban environments.

Advanced Precision Kill Weapon System II (APKWS II)

The Fiscal Year 2013 President's Budget requests \$42.1 million of PAN&MC, including \$17.9 million of OCO funding, for procurement of 2,358 APKWS II Precision Guidance Kits. After the DoN assumed program authority from the Army on September 30, 2008, Congress appropriated funding and approved a DoN above-threshold reprogramming (ATR) request in Fiscal Year 2008 to complete APKWS II development. Milestone C was achieved in April 2010 and LRIP contract award in July 2010. IOT&E was successfully completed in January 2012. IOC was achieved in March 2012. The program is on track for a Full Rate Production decision the third quarter of Fiscal Year 2012. APKWS II will provide an unprecedented precision guidance capability upgrading our current unguided rockets, improving accuracy and minimizing collateral damage. The program is on schedule to meet the needs of our warfighters in today's theaters of operations.

Direct Attack Moving Target Capability (DAMTC)

The Fiscal Year 2013 President's Budget requests \$15.4 million for the second FRP order of 1,069 weapons. DAMTC was initiated as a Fiscal Year 2007 RDC in response to an urgent

requirement identified by the combatant commander overseeing operations in Iraq and Afghanistan. The RDC has now transitioned to a formal program of record, designated Joint Integration, entering the Department's formal acquisition system at Milestone C. DAMTC provides a flexible, dual-mode weapon capable of precision guidance and attack on stationary targets through the weather, as well as reactive targeting and attack of moving and maneuvering targets in clear weather. The material solution for the DAMTC program is the Laser Joint Direct Attack Munition (LJDAM). The Laser JDAM leverages proven baseline JDAM technology and the existing JDAM logistics infrastructure mitigating life-cycle support costs.

Joint Air-to-Ground Missile (JAGM)

The FY 2013 President's Budget provides no funding for the Joint Air-to-Ground (JAGM) Program. The JAGM system is currently a Joint Department of the Army/Department of the Navy pre-Major Defense Acquisition Program with the Army designated as the lead service. The Government utilized full and open competition to initiate the Technology Development (TD) phase of the JAGM program. In the TD Phase, the two contractors completed a Preliminary Design Review (PDR), wind tunnel and ground testing, and flight testing in support of initial Navy platform integration activities. The originally planned 27- month TD phase is complete and OSD AT&L recently provided approval to extend the JAGM TD Phase. The Services recognize that HELLFIRE capability and inventory issues need to be addressed and that the requirement for JAGM remains valid. The extended TD Phase is addressing affordability concerns with the JAGM missile, and discussions continue between the DoN, the Army and OSD on the path forward.