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THE HOUSE ARMED SERVICES COMMITTEE
TACTICAL AIR AND LAND FORCES
SUBCOMMITTEE

STATEMENT OF

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BEFORE THE

TACTICAL AIR AND LAND FORCES
SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

DEPARTMENT OF THE NAVY'S AVIATION PROCUREMENT PROGRAM

APRIL 17, 2013

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INTRODUCTION

Mr. Chairman, Representative Sanchez, and distinguished members of the Subcommittee, we thank you for the opportunity to appear before you today to discuss the Department of the Navy's (DoN) Aviation programs. Our testimony will provide background and rationale for the Department's Fiscal Year 2014 Budget request for aviation programs aligning to our strategic priorities and budgetary goals.

The United States is a maritime nation with global responsibilities. Our Navy and Marine Corps' persistent presence and multi-mission capability represent U.S. power projection across the global commons. They move at will across the world's oceans, seas and littorals, and they extend the effects of the sea-base deep inland. Naval Aviation provides our nation's leaders with "offshore options." We enable global reach and access, regardless of changing circumstances, and will continue to be the nation's preeminent option for employing deterrence through global presence, sea control, mission flexibility and when necessary, interdiction. We are an agile strike and amphibious power projection force in readiness, and such agility requires that the aviation arm of our naval strike and expeditionary forces remain strong.

There are several central themes to our 2014 Naval Aviation Budget plan: 5th generation fighter/attack capability; persistent multi-role intelligence, surveillance, and reconnaissance; supporting capabilities such as electronic attack, maritime patrol, and vertical lift; robust strike weapons programs; and targeted modernization of the force for relevance and sustainability.

First, we are acquiring F-35 5th generation fighter/attack aircraft while maintaining sufficient legacy aircraft inventory capacity. Our plan will integrate 5th generation technologies into the carrier air-wing and expeditionary forces while maintaining and modernizing the capability of the legacy fleet. F-35 will be a "day-one" capable strike-fighter that is flexible and survivable. The F-35B will replace Marine Corps legacy F/A-18A-D Hornet and AV-8B Harrier and the F-35C will complement the capabilities of the F/A-18E/F Super Hornet. We have maintained our F-35B and F-35C procurement profile achieving the program procurement stability in line with the improvements in program accountability, discipline and transparency. The overall F-35 development program is adequately resourced and has realistic schedule planning factors to complete System Development and Demonstration. Although challenges still remain, the Navy and Marine Corps are fully committed to both the F-35B and F-35C variants as we believe this aircraft is on sound footing towards delivering full Block 3 capabilities.

The F/A-18E/F will continue to receive capability enhancements to sustain its lethality well into the next decade. Future avionics upgrades will enable network-centric operations for situational awareness and transfer of data to command-and-control nodes.

To meet the demand for persistent, multi-role intelligence, surveillance, and reconnaissance (ISR) capability, the Navy and Marine Corps are building a balanced portfolio of manned and unmanned aircraft, leveraging other service capacity where able, but valuing the unique contribution of maritime ISR. Unmanned systems have experienced high growth in the past decade and have proved to be invaluable assets for the joint force commanders. Because of their increasing presence, importance, and integration on the maritime and littoral battlefields, the roadmaps for the unmanned air systems are now included alongside the manned aircraft platforms in the mission categories they serve. The Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) air system will provide a persistent aircraft carrier-based reconnaissance and strike capability to support carrier air-wing operations beginning by the end of the decade. MQ-4C Triton will provide persistent land-based maritime surveillance and complement our P-8 Multi-Mission Maritime Aircraft (MMA); MQ-8 Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide ISR support to our Littoral Combat Ships (LCS); and smaller unmanned systems as the RQ-21A Small Tactical Unmanned Aircraft System (STUAS) and RQ-7B Marine Corps Tactical UAS (MCTUAS) will provide the shorter duration, line-of-sight reconnaissance capability essential for the unit level.

The Fiscal Year 2014 Budget request enables Naval Aviation to continue recapitalization of our aging fleets of airborne early warning, maritime patrol, electronic attack, and vertical lift platforms.

The Department is recapitalizing our fleet of E-2C airborne early warning aircraft with the E-2D. E-2D integrates a new electronically-scanned radar that provides a two-generation leap in technology with the capability to detect and track emerging air and cruise missile threats in support of Integrated Air and Missile Defense (IAMD). We continue efforts to replace our aged fleet of P-3C maritime patrol aircraft with a modern P-8A equipped with a sensor suite that provides persistent undersea and anti-surface warfare capabilities. Electronic attack capabilities, both carrier-based and expeditionary, continue to mature with plans to field sixteen EA-18G squadrons, while we also continue development of the Next Generation Jammer (NGJ) to replace the legacy ALQ-99 Tactical Jamming System.

The Navy and Marine Corps are participating in Joint Future Vertical Lift efforts to identify leverage points for future rotorcraft investment. Currently, the Department continues to modernize vertical lift capability and capacity with procurement of MH-60R/S, AH-1Z, UH-1Y, CH-53K, MV-22B, and the fleet of Presidential Helicopters (VXX program).

Finally, within our Fiscal Year 2014 Budget request, the Department is continuing investments in the strike weapons programs that enable any deterrence or combat operation to ultimately succeed. Strike weapons investments include the Air Intercept

Missile/AIM-9X Block 2; Small Diameter Bomb II (SDB II); the Joint Standoff Weapon (JSOW C-1); Tactical Tomahawk Cruise Missiles (TACTOM/BLK IV); and the Advanced Anti-Radiation Guided Missile (AARGM). These capabilities ensure our Navy and Marine Corps warfighters can and will dominate in the air, on the world's oceans, seas and littorals, and in any land-combat operation.

TACTICAL AVIATION (TACAIR)

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

The Department of the Navy 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 TACAIR fleet by replacing the Navy and Marine Corps legacy F/A-18A-D Hornet and the Marine Corps AV-8B Harrier. 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 and strike 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 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.

With the resources applied to the F-35 program at the March 2012 Milestone B recertification and reflected in Fiscal Year 2014 President's Budget request, the overall F-35 development program is adequately resourced with realistic schedule planning factors to complete System Development and Demonstration (SDD). The SDD contract renegotiation has been completed and includes these updated planning factors. Although challenges still remain, 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.

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. Over the past year, the F-35 program has worked with Lockheed Martin to implement a concurrency management structure and refine the estimate of concurrency costs based on discrete test and qualification events. 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 (LRIP) lots are built, their cumulative requirements for retrofit modifications decline. Furthermore, beginning with LRIP 5, Lockheed Martin is contractually obligated to share in the costs associated with concurrency.

F-35 sustainment costs remain a concern. The DoN continues to support the F-35 Joint Program Office (JPO) in its disciplined approach to analyzing and reducing sustainment costs. While the JPO and the Services made progress this past year identifying approximately $30 billion (CY12$) in projected life-cycle savings, there is more work to do in this area and the focus remains. The DoN, working in concert with the JPO, will analyze options outside of the Program Executive Office's (PEO) span of control to reduce operating cost such as reviewing basing options and sequencing, 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 Fiscal Year 2014 President's Budget requests $1.0 billion in Research, Development, Test & Evaluation (RDT&E,N) to continue the F-35 SDD program and $2.9 billion in Aircraft Procurement, Navy (APN) for ten F-35 aircraft (six F-35B and four F-35C) with associated aircraft hardware, modification requirements, and spares. The request includes funding for Block 4 for systems engineering and planning to achieve follow on capabilities for emerging and evolving threats. Maintaining procurement 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, but the program is improving and showing accountability, discipline, and transparency. The F-35 is an essential future Navy/Marine Corps Aviation capability and the Department 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

Ongoing service life management initiatives continue to demonstrate excellent return on investment (ROI) against the effort to close the Strike Fighter shortfall gap.

Flying aircraft outside their design life is not without risk and comes with less predictability and more variability. In order to mitigate this risk, engineering analysis will continue to ensure our ability to address these discoveries, lesson burden on the operating forces, and ensure needed aircraft availability. Fleet Readiness Centers have the capacity to execute the required number of HFH inspections and SLEP modifications.

In order to maintain warfighting relevancy in a changing threat environment, 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 Marine Corps on selected F/A-18A-D aircraft.

The continued outstanding efforts of the Navy/Marine Corps team will further define necessary actions required to manage aging F/A-18 A-D aircraft, address discovery of potentially greater than expected fatigue and corrosion, and ensure required availability of aircraft until Joint Strike Fighter Fleet Introduction.

F/A-18 E/F Super Hornet

The Fiscal Year 2014 President's Budget requests $206.5 million in APN for tasks common to F/A-18E/F and EA-18G production; $491.9 million in APN to implement aircraft commonality programs to maintain capabilities and improve reliability/structural safety of the Super Hornet fleet; and $21.9 million RDT&E,N to support the F/A-18E/F Service Life Assessment Program (SLAP).

The F/A-18E/F significantly improves the survivability and strike capability of the carrier air-wing. The Super Hornet provides increased combat radius and endurance, and a twenty-five percent increase in weapons payload over legacy Hornets. The production program continues to deliver on-cost and on-schedule.

There are no F/A-18E/F aircraft programmed in Fiscal Year 2014; only the 21 EA-18Gs. Fiscal Year 2013 is the final planned procurement year to complete the Program of Record (POR) of 552 F/A-18E/F aircraft. The Congressional add of 11 F/A-18E/F in 2013 changes the total number of aircraft to 563 which will be incorporated into the POR with the next budget submission. A Multi-Year Procurement contract for 124 F/A-18E/F Super Hornets and EA-18G Growlers (Fiscal Years 2010 through 2013) was signed on September 24, 2010. In December 2010, the Secretary of Defense added 41 F/A-18 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 Active Electronically Scanned Array (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 415 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 deployed 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.

Production Engineering Support (PES) and Integrated Logistics Support (ILS) funded efforts common to both F/A-18E/F and EA-18G aircraft are included in the F/A-18E/F budget lines independent of whether F/A-18E/F aircraft are being procured. These two support cost elements are not proportional to the number of aircraft being procured and are not duplicative to the funding in PES and ILS of the EA-18G budget.

The $491.9 million in APN implements commonality efforts to maintain capabilities and improve reliability/structural safety of the Super Hornet fleet. The Super Hornet uses an incremental development/commonality approach to incorporate new technologies and capabilities, to include: Digital Communication System (DCS) Radio, Multi-Functional Information Distribution System (MIDS), Joint Tactical Radio System (JTRS), Joint Helmet Mounted Cueing System (JHMCS), ATFLIR with shared real-time video, Accurate Navigation (ANAV), Digital Memory Device (DMD), Distributing Targeting System (DTS), Infrared Search and Track (IRST) and continued advancement of the APG-79 AESA Radar.

The $21.9 million RDT&E,N request supports the F/A-18E/F SLAP 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 identify 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. This will optimize Fatigue Life Expended, flight hours, and total landings aligning aircraft service life with fleet requirements.

TACAIR Inventory Management

The Navy and Marine Corps continue to carefully monitor strike fighter inventory requirements and projected availability. The Fiscal Year 2013 President's Budget shortfall of 56 was assessed as manageable. The Strike Fighter Shortfall (SFS) is currently predicted to peak at 18 in 2023. The shortfall continues to fall primarily as a result of decreased F/A-18E/F utilization rates and flight extensions for F/A-18A-D aircraft after successful completion of the High Flight Hour (HFH) inspections and repair. The shortfall is based on the following assumptions: The DoN will maintain its current tactical fixed wing force structure; utilization rates will not increase; the delivery rate of F-35B/C does not slip further to the right; and SLEP efforts on legacy Hornets will allow most of them to fly past 8,000 flight hours to an extended authorization of 9,000 hours after completing the HFH inspections with a subset of those aircraft attaining 10,000 flight hours with SLEP modifications.

While the SFS continues to fall within the executable 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 2030.

The Marine Corps has been driven 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 2026, and the current F/A-18 reserve squadron does not receive its F-35's until the year 2030. Additional pressures are felt with an increase of F/A-18A-D aircraft reaching 8,000 flight hours and requiring extensive depot time to inspect, repair, and extend service-life. 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 until 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 is operating with an 18 aircraft shortfall. 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 with a two aircraft shortfall. In Fiscal Year 2014, the Navy will transition two 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.

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

The Fiscal Year 2014 President's Budget request includes $19.7 million in RDT&E,N for Electronic Warfare (EW) Counter Response; $10.1 million RDT&E,N for MAGTF EW, $48.5 million in APN for common Airborne Electronic Attack (AEA) systems; $18.6 million in APN for all EA-6B series aircraft; and $14.4 million APN for MAGTF EW.

Currently, 57 EA-6Bs in the Navy and Marine Corps support 51 operational aircraft in 10 active squadrons, one reserve squadron, and two test squadrons. This includes 24 Navy and Marine Corps Improved Capability (ICAP) II aircraft and 27 ICAP III aircraft. Following the final Navy EA-6B transition to EA-18G in 2015, all remaining ICAP III EA-6Bs will transfer to and be operated by the Marine Corps, or be in pipeline for final disposition. Final retirement of the EA-6B from the Department's inventory will be in 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 currently carried on the AV-8B in U.S. Central Command's (CENTCOM) Area of responsibility (AOR) and the 15th Marine Expeditionary Unit (MEU). Intrepid Tiger II and similar electronic warfare capabilities will eventually be fielded on unmanned, fixed-wing, and rotary-wing platforms to provide direct AEA support to the MAGTF. 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.

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

The Fiscal Year 2014 President's Budget request is $2.0 billion in APN for procurement of 21 EA-18G aircraft; $11.1 million in RDT&E,N for integration of Jamming Techniques Optimization improvements and evolutionary software development; and $257.7 million RDT&E,N for Next Generation Jammer (NGJ).

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). Since the initial deployment, Growlers have flown more than 2,300 combat missions. The EA-18G received accolades from both CENTCOM and Supreme Headquarters Allied Powers Europe for its enabling combat capability contributions 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 four of the 10 carrier based squadrons have completed transition to the EA-18G. The 10 carrier based EA-18G squadrons will fulfill USN requirements for airborne electronic attack; six expeditionary EA-18G squadrons will fill the joint, high-intensity AEA capability required by the Joint Forces Commander previously fulfilled by the USN and USMC EA-6B. The Navy will be divested of EA-6Bs by 2015; the Marine Corps by 2019. The program of record is for 135 EA-18G aircraft, of which 114 have been procured to date. The final procurement of EA-18Gs is planned for 2014. The EA-18G fleet has flown approximately six percent of the 7,500 total flight hours per aircraft and are meeting all operational commitments.

The NGJ is new electronic warfare technology that replaces the 40-year old ALQ-99 system. It 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.

E-2D Advanced Hawkeye (AHE)

The Fiscal Year 2014 President's Budget requests $152.0 million in RDT&E,N for continuation of System Development and Demonstration and added capabilities to include In-Flight Refueling, Tactical Targeting Network Technology, Secret Internet Protocol Router Chat, and the Advanced Mid-Term Interoperability Improvement Program, and $1,264 million in APN for five Full Rate Production (FRP) Lot 2 aircraft and advance procurement (AP) for Fiscal Year 2015 FRP Lot 3 aircraft and EOQ funding for the proposed Multi-Year Procurement for Fiscal Years 2016, 2017, and 2018.

The E-2D AHE is the Navy's carrier-based Airborne Early Warning and Battle Management Command and Control system. The E-2D AHE 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 AHE 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.

The E-2D AHE program is in Full Rate Production. On March 1, 2013, the Acquisition Decision Memorandum was signed and the Secretary of Defense certification for the Fiscal Year 2014-2018 Multi-Year Procurement was sent to Congress. Initial Operational Capability (IOC) is on track for first quarter Fiscal Year 2015.

AV-8B Harrier

The Fiscal Year 2014 President's Budget requests $41.6 million in APN funds to continue the incorporation of Obsolescence Replacement/Readiness Management Plan systems; electrical and structural changes; upgrades to air-to-air weapon system employment and integration components; inventory sustainment and upgrade efforts to offset obsolescence and attrition; LITENING Pod upgrades; and AV-8B F402-RR-408 engine safety and operational changes.

The Fiscal Year 2014 President's Budget requests $35.8 million in RDTE,N funds to continue Design, Development, Integration and Test of various platform improvements such as: Engine Life Management Program (ELMP), Escape Systems, Joint Mission Planning System (JMPS), and Block upgrades to various mission systems, communications systems, navigation equipment, weapons carriage and countermeasures, and the Obsolescence Replacement (OR)/Readiness Management Plan (RMP).

The AV-8B continues to be deployed heavily in support of operational contingencies. Each MEU deploys with embarked AV-8Bs. The AV-8B, equipped with precision weapons, LITENING targeting pods with a video downlink to ROVER ground stations, and beyond visual range air-to-air radar missiles, has continued to be a proven, invaluable asset for the MAGTF and joint commander across the spectrum of operations. By the end of 2013, the AV-8B will receive the H6.1 Operational Flight Program enabling full integration of the Generation 4 LITENING Targeting pod. Based on current F-35B transition plans, the Harrier out-of-service date has been extended from 2022 to 2030. 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. Operation ENDURING FREEDOM has confirmed the sortie generation capability and multi-role nature of the AV-8B Harrier. 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 2014 President's Budget requests $ 43.1 million in RDT&E, N for continued product improvements and $1.49 billion in APN for procurement and delivery of 18 MV-22s (Lot 18). Fiscal Year 2014 will be the second year of the follow-on V-22 multi-year procurement (MYP) contract covering Fiscal Years 2013-2017. The funds requested in the Fiscal Year 2014 President's Budget request fully fund Lot 18, procure long lead items for Lot 19 and provide the balance of required Economic Order Quantity funding for the MYP. The Marine Corps continues to field and transition aircraft on time. The APN request includes $160.8 million to support the ongoing Operations and Safety Improvement Programs (OSIP), including Correction of Deficiencies and Readiness.

The follow-on MYP, which begins in Fiscal Year 2013, will procure at least 91 MV-22s over five years and includes significant savings of approximately $1 billion when compared to single year procurements. The stability of the MYP supports the Marine Corps' need to retire old aircraft and field new and better capabilities. This stability also benefits the supplier base and facilitates cost reductions on the part of both the prime contractor and sub-tier suppliers.

Through introduction of the Osprey tilt-rotor capability into combat, the service has gained valuable insight with respect to readiness and operating costs. These improvements continue to have a clear effect on increasing aircraft availability and decreasing flight hour costs. At the close of Fiscal Year 2012, the mission capability rate of the MV-22 increased eight percent over Fiscal Year 2011 and the cost per flight hour

decreased six percent in the same period. 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.

CH-53K Heavy Lift Replacement Program

The Fiscal Year 2014 President's Budget requests $503.2 million RDT&E,N to continue Engineering and Manufacturing Development (EMD) of the CH-53K. Since completing its Critical Design Review in July 2010, the CH-53K program commenced system capability and manufacturing process demonstration, and started fabrication of the first five test aircraft (one ground test aircraft, four flight test aircraft). During Fiscal Year 2014, the program will assemble and check-out the first of these test articles needed to support developmental test activities and flight test of the CH-53K.

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 high altitude, and hot weather conditions, 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 dramatically increase protection 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 sea-basing and the joint operating concepts of force application and focused logistics.

The CH-53E aircraft currently in service continue to meet unprecedented operational demand but are approaching 30 years of service and growing ever more challenging to maintain. To keep the "Echo" viable until the "Kilo" enters service, the Fiscal Year 2014 President's Budget requests $67.7 million APN for both near and mid-term enhancements. These modifications include Condition Based Maintenance software upgrades, T-64 Engine Reliability Improvement Program kits, Critical Survivability Upgrade, Smart Multifunctional Color Display and sustainment efforts such as Kapton wiring replacement and improved Engine Nacelles.

ATTACK AND UTILITY AIRCRAFT

UH-1Y // AH-1Z

The Fiscal Year 2014 President's Budget requests $47.1 million in RDT&E, N for continued product improvements and $821.0 million in APN for 25 H-1 Upgrade aircraft: 15 UH-1Y and 10 AH-1Z aircraft. The program is a key modernization effort designed to resolve existing safety deficiencies, enhance operational effectiveness, and extend the service-life of both aircraft. The 85 percent commonality between the UH-1Y and AH-1Z will significantly reduce lifecycle costs and the logistical footprint, while increasing the maintainability and deployability of both aircraft. The program will provide the Marine Corps with 349 H-1 aircraft through a combination of new production and a limited quantity of remanufacturing.

The H-1 Upgrades Program is replacing the Marine Corps' UH-1N and AH-1W helicopters with state-of-the-art UH-1Y "Yankee" and AH-1Z "Zulu" aircraft. The new 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 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 aircraft achieved IOC in August 2008 and 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. The AH-1Z achieved IOC in February 2011. As of March 30, 2013, 104 aircraft (74 UH-1Ys and 30 AH-1Zs) have been delivered to the Fleet Marine Force; an additional 77 aircraft are on contract and in production. Lots 1- 6 aircraft deliveries are complete. The last two aircraft from Lot 7 (the first two AH-1Z Build New (ZBN) aircraft) will deliver in Fiscal Year 2014. Lot 8 deliveries are progressing on or ahead of schedule. All aircraft deliveries since Lot 3 have been completed ahead of the contracted schedule date by an average of 33 days.

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 the inventory rather than removing them from service to begin the remanufacture process. The transition to an all ZBN airframe strategy began 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.

EXECUTIVE SUPPORT AIRCRAFT

VH-3D/VH-60N Executive Helicopter 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 2014 President's Budget requests an investment of $85.7 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 a number of obsolescence issues. Continued investments in the in-service fleet will ensure continued safe and reliable execution of the Executive Lift mission. These technology updates for legacy platforms will be directly leveraged for the benefit of the ensuing replacement program (VXX).

VXX Presidential Helicopter Replacement Aircraft

The Fiscal Year 2014 President's Budget request includes $94.2 million for continuing efforts on VXX, the follow-on program for Presidential helicopters.

Significant progress has been made in the past year and the program requirements and acquisition strategy have now been approved. The acquisition approach includes full and open competition for integration of mature subsystems into an air vehicle that is currently in production. This strategy will enable the program to proceed directly into the EMD phase. Contractor proposals are expected this summer for the EMD effort, along with priced options for production. The milestone B review and subsequent contract award are planned to occur during Fiscal Year 2014. The first of the planned inventory of 21 aircraft could begin fielding as early as 2020.

FIXED WING AIRCRAFT

KC-130J

The Fiscal Year 2014 President's Budget requests $166.7 million for procurement of one KC-130J's included in the first year of the MYP request and continued product improvements of $47.6 million. Targeted improvements include air-to-air refueling hose reel reliability, aircraft survivability through advanced electronic countermeasure

modernization, and obsolescence upgrades to the Harvest HAWK ISR/Weapon Mission Kit.

Fielded throughout our active force, the USMC declared IOC for the KC-130J transition in 2005; bringing increased capability, performance and survivability with lower operating and sustainment costs to the MAGTF. Continuously forward deployed in support of Operations IRAQI FREEDOM and ENDURING FREEDOM (OIF/OEF) since 2005, the KC-130J continues to deliver Marines, fuel and cargo whenever and wherever needed. In 2012 the KC-130J remained in high demand, providing tactical air-to-air refueling, assault support, close air support and Multi-sensor Imagery Reconnaissance (MIR) in support of OEF, Special Purpose MAGTF Afghanistan, and deployed MEUs.

Continuously deployed in support of OEF since fielding in 2010, the bolt-on/bolt-off Harvest HAWK ISR/Weapon Mission Kit for the KC-130J continues to provide the extended MIR and CAS required by Marine forces in Afghanistan. Three mission kits have been fielded to date, with three more kits on contract to deliver in Fiscal Year 2014. Funding included in the Fiscal Year 2014 Budget request will be used to maintain operational relevance of this mission system through Hellfire P4 compatibility and the addition of a full motion video transmit and receive capability.

The USMC has procured 48 KC-130Js, 31 aircraft short of the 79 aircraft program of record. The three aircraft included in the FY 2013 budget will complete the Active Component (AC) requirement of 51 aircraft. The Marine Corps will use the AC backup aircraft to accelerate the Reserve Component (RC) transition from the legacy KC-130T aircraft to the more capable, more efficient, KC-130J beginning in Fiscal Year 2015. Aircraft requested in the Fiscal Year 2014 President's Budget request will further accelerate the RC transition. 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 Fiscal Year 2014 President's Budget requests $317 million in RDT&E, N for integrated development and associated testing and $3.503 billion for procurement of 16 FRP P-8A Poseidon aircraft which are scheduled to begin delivery in May 2016. APN funding supports Advanced Procurement (AP) for the subsequent FRP procurement lot. 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 that enables integration of modern sensors and robust communications. 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 approved Acquisition Program Baseline.

In August 2010, the P-8A program obtained Milestone C approval, 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 has awarded contracts for all LRIP aircraft. All six LRIP Lot 1 aircraft have been delivered to Patrol Squadron 30 at Naval Air Station, Jacksonville, FL, and LRIP Lot 2 deliveries are now commencing. The first Fleet squadron (VP-16) has completed P-3C to P-8A transition training, and the second squadron transition (VP-5) is underway and on-track. Patrol Squadron 16 continues preparations for the first operational P-8A deployment in December 2013. The P-8A SDD effort has completed Initial Operational Test and Evaluation (IOT&E), delivered software updates to address previously identified deficiencies, and initiated testing of these software updates in preparation for a first quarter Fiscal Year 2014 Follow-On Test and Evaluation (FOT&E) period. Results of Operational Testing (OT) are being analyzed in preparation for release of the Beyond LRIP report and subsequent FRP decision review. The production configuration has been shown to be mature and stable throughout the Integrated Test and IOT&E phases. The program has completed proposal evaluations and expects to complete contract negotiations in time to award the fourth production lot in June 2013. As fleet deliveries of the Increment 1 configuration accelerate, integration and testing of P-8A Increment 2 capability upgrades continue. In particular, Phase I of Increment 2 Multi-Static Active Coherent ASW capability is on-track for flight testing in Fiscal Year 2014. Fiscal Year 2013 began prototyping and development of the more extensive P-8A Increment 3 upgrades, which expand the P-8A evolutionary acquisition strategy to deliver the next level of required P-8A capability.

P-3C Orion

In Fiscal Year 2014, $37.4 million is requested for P-3C airframe and mission systems sustainment. Over two-thirds ($26.7 million) is for wing modifications to support the Chief of Naval Operation (CNO) "P-3 Fleet Response Plan", as well as supporting EP-3E requirements, which are executed within the P-3 Airframe Sustainment Program. The legacy P-3C fleet continues to provide ASW, ASUW, and ISR support for Joint and Naval operations worldwide. The P-3C is being sustained to maintain warfighting capability and capacity until completion of P-8A transition in Fiscal Year 2018.

The P-3C aircraft is well beyond the original planned fatigue life of 7,500 hours for critical components, with an average airframe usage of over 18,000 hours. Since February 2005, 174 aircraft grounding bulletins have impacted 131 P-3 aircraft. In December 2007, the Navy'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 39 P-3 aircraft. As of February 2013, a total of 88 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 and 85 P-3C mission aircraft are available today. Preserving funding for Zone 5 and outer wing installations is critical to sustaining the minimum number of P-3Cs until replaced by the P-8A. The Navy will continue to closely manage the service life of the P-3C through transition to the P-8A Poseidon.

EP-3 Aries Replacement/Sustainment

In Fiscal Year 2014, the President's Budget request is $55.9 million in APN for EP-3 Aries Replacement/Sustainment. The APN request supports the procurement and installation of multi-intelligence capabilities and modifications necessary to meet emergent classified requirements. These efforts are necessary to keep the platform viable until the EP-3 capabilities are recapitalized.

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. These upgrades, 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 Future Years Defense Program. Multi-INT sensors, robust communication, 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.

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 Program of Record platforms: MQ-4C Triton, VTUAV, P-8A, 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 Combatant Commanders with scalable capability and capacity. The inclusive full-spectrum approach of the Navy's sea and shore-based manned and unmanned platforms aligns with the CNO's priorities.

UNMANNED AERIAL SYSTEMS (UASs)

MQ-4C Triton UAS

The Fiscal Year 2014 President's Budget postpones the MQ-4C Triton (formerly known as BAMS for Broad Area Maritime Surveillance) Low Rate Initial Production (LRIP) until Fiscal Year 2015. The Fiscal Year 2014 President's Budget requests $375.2 million in RDT&E,N to continue Triton SDD; $52.0 million APN for procurement of long-lead

materials for the first lot of LRIP aircraft; and $79.2 million in MILCON to refurbish a maintenance hangar at NAS Point Mugu, CA, as well as a Forward Operating Base and hangar for Pacific operations at Andersen AFB, Guam. Though LRIP is delayed one year, Triton will start establishing five globally-distributed, persistent maritime ISR orbits by providing operational ISR beginning in Fiscal Year 2016. The program is scheduled to perform First Flight this quarter, commencing a rigorous integrated flight test program, to support Milestone C planned for Fiscal Year 2015. The MQ-4C Triton is a key component of the Navy Maritime Patrol Reconnaissance Force. Its persistent sensor dwell, combined with networked sensors, will enable it to effectively meet ISR requirements in support of the Navy Maritime Strategy.

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 Triton UAS Program. In April 2011, Navy accepted three additional Block 10 aircraft from the USAF to be utilized as spare parts assets. These aircraft, known as BAMS-Demonstrators, have been deployed to CENTCOMs AOR for over four years. These demonstration assets are adequate to cover all Navy needs through the transition to Triton in Fiscal Year 2016.

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. The Fiscal Year 2014 President's Budget requests $48.7 million of RDT&E, N to continue development of an endurance upgrade (MQ-8C), to continue payload and LCS integration with the MQ-8B, and integrate radar on the MQ-8B. The request includes $76.6 million of APN for the production of one Fire Scout MQ-8C aircraft, multiple Ship Control Stations, and initial spares to support the MQ-8C Rapid Deployment Capability. Procurement of ship-based control stations is aligned to both the LCS schedule and the outfitting of other ships to support Special Operations Forces (SOF) missions. Commonality of avionics, software, and payloads between the MQ-8B and MQ-8C has been maximized. The MQ-8B and MQ-8C use the same ship-based control station and other ship ancillary equipment.

Fire Scout was deployed to Afghanistan in April 2011, and has amassed more than 4,300 dedicated ISR flight hours in support of U. S. and coalition forces. Successful deployments aboard USS SIMPSON, USS KLAKRING, USS BRADLEY, and USS SAMUEL B. ROBERTS have supported SOF and Navy operations since 2012. Fire Scout has flown more than 1,500 hours from frigates, performing hundreds of autonomous ship board take-offs and landings. The Fire Scout program will continue to support integration and testing for LCS-based mission modules.

These unforeseen early deployments and high operational temp, combined with previously undiscovered and corrected reliability issues with the MQ-8B, have caused delays in Initial Operational Test and Evaluation (IOT&E). Acquisition planning, which leverages investments in VTUAV rapid deployment capabilities, is in work to ensure Fire Scout will continue to support the LCS mission packages.

Unmanned Combat Air System Carrier Demonstration (UCAS-D)

The Fiscal Year 2014 President's Budget requests $21 million in RDT&E, N to complete the Navy UCAS-D efforts to research a tactical jet-sized, carrier-suitable, low-observable-relevant, unmanned aircraft system. The Fiscal Year 2014 Budget request is to complete the autonomous aerial refueling (AAR) demonstration with surrogate aircraft, the Navy UCAS Capstone artifacts to capture all lessons learned, disposition of test articles, test beds, intellectual properties, and contract close-out efforts. The UCAS-D program will demonstrate UAS carrier operations and autonomous AAR, and mature required technologies to Technology Readiness Level six (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 the vicinity of aircraft carriers completed in 2009 and 2010. Since then, the X-47B has completed envelope expansion testing, land-based carrier control area and catapult testing, and is now completing the land-based approach and trap build-up to conduct carrier qualification testing, to include catapult and arrested landings, in the summer 2013. The latest AAR testing period was completed in January 2012 utilizing a manned surrogate aircraft, and AAR development and testing will continue throughout 2013. The program is constrained by USN CVN schedules and planning. Currently the program is working closely with Navy leadership to reduce risk and align program and CVN operational schedules to best accommodate demonstration objectives.

Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System

The Fiscal Year 2014 President's Budget requests $146.7 million in RDT&E, N for 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 no later than Fiscal Year 2020. The Joint Requirements Oversight Council issued a memorandum in December of 2013, reconfirming the need for an affordable, adaptable carrier-based ISR platform with precision strike capability. The UCLASS system will provide persistent ISR with precision strike capabilities for missions ranging from permissive counter-terrorism operations, to missions in low-end contested environments. The UCLASS system will also provide enabling capabilities for high-end denied operations from the carrier strike group. It will be sustainable onboard an aircraft carrier, as well as ashore, and will be designed to minimize 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.

Tactical Control Station (TCS)

The Fiscal Year 2014 President's Budget requests $8.4 million in RDT&E, N for the Tactical Control Station (TCS). TCS provides a standards compliant, open architecture, with scalable command and control capabilities for the VTUAV system. In Fiscal Year 2014, TCS will continue to transition to 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 Linux operating system conversion overcomes hardware obsolescence issues with the Solaris based control stations and provides 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.

Cargo Unmanned Aerial System (CUAS)

The Fiscal Year 2014 President's Budget is requesting funding for continued CUAS deployment in Fiscal Year 2014. CUAS operations started in November 2011, and have delivered over three million pounds of cargo in 1,300 flight hours to date. The CUAS is meeting rapid development capability 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 provides 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 also augments manned aviation assault support assets and airdrop methods when the weather, terrain, and enemy pose an unsuitable level of risk. CONOPS expansion in 2012 included autonomous cargo delivery to a way point and cargo retrograde from spokes back to the main base.

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

The Fiscal Year 2014 President's Budget requests $16.1 million in RDT&E, N ($5.0 million USN, $11.1 million USMC) and $66.6 million in PMC for five RQ-21A systems

which include 25 air vehicles that will address Marine Corps 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 and force protection missions. Milestone B and contract award occurred in July 2010. Milestone C and LRIP decisions are scheduled for the third quarter of Fiscal Year 2013. RQ-21A will enter into IOT&E no later than the fourth quarter of Fiscal Year 2014.

RQ-7B Marine Corps Tactical UAS (MCTUAS)

The Fiscal Year 2014 President's Budget requests $0.7 million in RDT&E, N to continue development efforts and government engineering support and $26.4 million in APN to support the continuation of congressionally mandated Tactical Control Data Link (TCDL) retrofits for RQ-7B Shadow units. USMC Shadow squadrons have seen continuous service in Iraq and Afghanistan since 2007. The Marine Corps 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 the first quarter of Fiscal Year 2012.

STRIKE WEAPONS PROGRAMS

Tactical Tomahawk BLK IV Cruise Missile Program

The Fiscal Year 2014 President's Budget requests $312.5 million in Weapons Procurement, Navy (WPN) for procurement of an additional 196 BLK IV weapons and associated support, $26.1 million in OPN for the Tactical Tomahawk Weapon Control System (TTWCS), and $4.5 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 initiate engineering efforts for Image Navigation (INAV), which provides an upgrade to reduce mission planning time-lines and reduce reliance upon GPS navigation.

Tomahawk Theater Mission Planning Center (TMPC)

TMPC is the mission planning segment of the Tomahawk Weapon System. Under the umbrella of TMPC, the Tomahawk Command and Control System (TC2S) develops and

distributes strike missions for the Tomahawk Missile; provides for precision strike planning, execution, coordination, control and reporting; and enables Maritime Component Commanders the capability to plan and/or modify conventional Tomahawk Land-Attack Missile missions. TC2S optimizes all aspects of the Tomahawk missile technology to successfully engage a target. TC2S is a Mission Assurance Category 1 system vital to operational readiness and mission effectiveness of deployed and contingency forces for content and timeliness. The Fiscal Year 2014 President's Budget requests $7.9M in RDT&E and $45.5M OPN for continued TMPC system upgrades and support. These planned upgrades support integration, modernization and interoperability efforts necessary to keep pace with changes, retain capability and exploit capabilities of the Tomahawk missile and external organizations to include providing an alternate GPS denied navigation system (ImageNav), rewrite/update of Tomahawk Planning System's unsupported legacy software code, and technology refreshes to reduce vulnerability to cyber attacks. These resources are critical for the support of over 180 TC2S operational sites: Cruise Missile Support Activities, Tomahawk Strike and Mission Planning Cells (5^{th}, 6^{th}, 7^{th} Fleet), Carrier Strike Groups, Command and Control Nodes, Surface and Subsurface Firing Units and Labs/Training Classrooms.

Sidewinder Air-Intercept Missile (AIM-9X)

The Fiscal Year 2014 President's Budget requests $39.2 million in RDT&E and $117.2 million in 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 225 All-Up-Rounds and Captive Air Training Missiles and missile-related hardware. The AIM-9X/BLK II 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; a data link; 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 2014 President's Budget requests $2.6 million in RDT&E and $95.4 million in WPN for production of 54 tactical 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. Prior missile production delays due to rocket-motor anomalies

are being addressed. We now anticipate AIM-120D production will recover for both the Air Force and the DoN in the mid-2014 timeframe.

Small Diameter Bomb II (SDB II)

The Fiscal Year 2014 President's Budget requests $46 million in RDT&E for the continued development of this joint DoN and USAF (lead) 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. 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 July 2013.

Joint Standoff Weapon (JSOW)

The Fiscal Year 2014 President's Budget requests $0.4 million in RDT&E for continued JSOW-C-1 test activity and $136.8 million in WPN for production of 328 All-Up Rounds. The JSOW-C-1 variant fills a critical 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 2014 President's Budget requests $12.2 million of RDT&E for the development of Telemetry and flight termination sections and the Block 1 follow-on development and test program and $111.9 million of WPN for production of 143 All-Up-Rounds and Captive Training Missiles. The AARGM cooperative program with Italy 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 target set. Initial Operational Capability (IOC) on the F/A-18C/D aircraft was reached in July 2012 and forward deployed to U.S. Pacific Command (PACOM). The program was approved for Full Rate Production (FRP) on August 20, 2012 and the first FRP contract was awarded on September 10, 2012.

Hellfire Weapon System

The Fiscal Year 2014 President's Budget requests $33.9 million in WPN for 363 Hellfire All-Up-Rounds and training assets, to provide maximum operational flexibility to our warfighters. The Hellfire is an Army led program. 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 prosecute Military Operations on Urban Terrain (MOUT) and other high valued targets of opportunity.

Advanced Precision Kill Weapon System II (APKWS II)

The Fiscal Year 2014 President's Budget requests $32.722 million in PAN&MC, for procurement of 1,103 APKWS II Precision Guidance Kits. Milestone C was achieved in April 2010. IOT&E was successfully completed in January 2012; declaring IOC in March 2012. The program received a favorable Full Rate Production (FRP) decision in March 2012 and the FRP contract was awarded in July 2012. APKWS II provides an unprecedented precision guidance capability to DoN unguided rocket inventories improving accuracy and minimizing collateral damage. Program production is on schedule to meet the needs of our warfighters in today's theaters of operations.

Joint Air-to-Ground Missile (JAGM)

The FY 2014 President's Budget requests $5.5 million in RDT&E for continued extended Technology Development (TD) of JAGM. JAGM is 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 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, USD(AT&L) provided approval to extend the JAGM TD Phase, and the Joint Chiefs of Staff validated the Department of the Navy's AH-1Z Cobra aircraft as a threshold platform for the JAGM program. The Services recognize that Hellfire capability and inventory issues need to be addressed and the requirement for JAGM remains valid. The extended TD Phase addresses affordability concerns with the JAGM missile, and discussions continue between the DoN, the Army and OSD on the path forward.

Responses to the Specific Questions
From the Tactical Air and Land Forces Subcommittee

Discussion of the validated 1,240 DoN Aircraft Strike-Fighter force structure inventory DoN Requirement and the projected peak inventory shortfall through 2025.

The 1,240 aircraft strike-fighter force is the projected DoN inventory needed to support the anticipated operational demand through the 2024 timeframe. The Navy inventory requirement of 820 aircraft supports 40 active duty Strike Fighter Squadrons composed of 440 aircraft, and two reserve squadrons with 20 aircraft. In order to maintain the operational aircraft, support aircraft are required for aviator training, flight test, attrition reserve and the depot pipeline. This inventory projection is estimated based on historical averages and assumes 100 percent squadron entitlement (no productive ratio reductions), service life of F/A-18E/F aircraft is 9,000 flight hours, and F/A-18A-D aircraft are extended to 9,000 flight hours (with 150 aircraft reaching 10,000 flight hours). This inventory projection does not account for potential future efficiencies gained from TACAIR Integration (TAI). Both services remain committed to TAI.

The Marine Corps TACAIR requirement is 420 aircraft. To meet operational demands, commitments, and force structure requirements the Marine Corps will have 18 active and two reserve squadrons. Integral to our current force structure reductions, our tactical aviation squadrons were restructured to optimize the support they provide to the Marine Air Ground Task Force. The Marines increased their flexibility and responsiveness by increasing the number of 16 aircraft squadrons (from seven to nine) thereby enabling tactical flexibility for simultaneous expeditionary afloat and ashore operations with current and future employment models. A total of 254 aircraft: nine active squadrons of 16 F-35B aircraft, five active squadrons of 10 F-35B aircraft, four active squadrons of 10 F-35C aircraft, two reserve squadrons of 10 F-35B aircraft, two training squadrons of 25 F-35B aircraft, and 10 F-35C aircraft supplementary to USN training squadrons. Additionally, there are six F-35B aircraft for test and evaluation, and 70 (58 F-35B, 12 F-35C) Backup Inventory Aircraft (BAI) and 30 (25 F-35B, 5 F-35C) Attrition Replacement (AR) aircraft. The inventory requirement is based on detailed projected and historical operational analysis, optimization of the Joint Strike Fighter (JSF) multi-mission capabilities, complete legacy TACAIR replacement by the F-35, and expected improvements in reliability, maintainability and survivability.

The DoN TACAIR shortfall is the amount of aircraft by which operational requirement (force structure demand) exceeds the aircraft available for tasking. To keep pace with the issue and provide analytical rigor to decision makers, DoN utilizes the Inventory Forecasting Tool (IFT) to project the combined effects of transition plans, attrition, and pipeline requirements on total strike fighter aircraft inventory. The IFT is updated in conjunction with annual budget submissions to provide a forecast of strike fighter

inventory compared to requirements. The Fiscal Year 2014 President's Budget Strike Fighter Shortfall is predicted to peak at 18 in 2023. The reduction in shortfall, from last year, is a result of a decrease in F/A-18E/F utilization rates and flight extensions for F/A-18A-D aircraft after successful completion of the High Flight Hour (HFH) inspections and repair, and the addition of 11 congressionally added F/A-18E/F aircraft in 2013.

The Strike Fighter Shortfall is projected to fluctuate throughout the next 20 years. To date, the DoN has been able to mitigate its shortfall with the successful execution of its Legacy F/A-18A-D HFH inspection and repair program, and a reduction in utilization rates across the F/A-18A-F fleet. The continued efforts of the Navy/Marine Corps team will further define necessary actions required to manage aging F/A-18 A-D aircraft, address discovery of potentially greater than expected fatigue and corrosion, and ensure required availability of aircraft until JSF Fleet Introduction.

The USN and USMC continue to adjust transition plans as F-35 procurement ramps are flattened. The Marine Corps is taking advantage of higher service life remaining in its AV-8B inventory by delaying the majority of their transitions to the end of the transition plan. This will reduce the demand for F/A-18A-D in the later years. Sustainment and relevancy funding will be imperative to maintain the requisite operational capability of the AV-8B throughout the 2020's.

Discussion of the service life assessment program being conducted to evaluate the feasibility of extending the service life of the F/A-18E/F to 9,000 and 12,000 flight hours and a description of the funding currently contained in the FY 2013-2016 FYDP for such program.

The F/A-18E/Fs have flown approximately 30 percent of the total flight hours available at the 6,000 hour limit and this will not be adequate to meet operational commitments out to 2035. As a result, the three-phased F/A-18E/F Service Life Assessment Program (SLAP) commenced in 2008 will last through 2018. Its goal is to analyze fleet actual usage versus structural test data to identify the feasibility of extending F/A-18E/F service life from 6,000 flight hours to 9,000 flight hours via a follow on Service Life Extension Program (SLEP). The Fiscal Year 2014 President's Budget includes a request for $104.8 million RDT&E (Fiscal Years 2014-2018) to support the F/A-18E/F SLAP requirement. One of the F/A-18E/F SLAP goals is to define the necessary inspections and modifications required to achieve 9,000 flight hours. Current SLAP methods would allow feasibility studies to assess an F/A-18E/F service life to 12,000 flight hours. Other SLAP goals relate to increasing total landings, arrested landings and catapults beyond currently defined life limits. Phase A, which developed methodologies to be used in assessing airframe, flight controls, and subsystems, is complete. Phase B constitutes a majority of the SLAP analysis activities and as analysis is completed will feed into SLEP extension activities.

The F/A-18E/F SLAP is incorporating lessons learned from the F/A-18A-D analysis. The F/A-18E/F SLAP was started sooner in its life cycle than the F/A-18A-D SLAP, and encompasses the entire weapon system vice just the airframe. The F/A-18E/F SLAP also has the advantage of having a third lifetime of test cycles completed on certain test articles providing detailed information on high fatigue areas early in the program. The Service Life Management Program (SLMP) philosophy has also been applied to the F/A-18E/F fleet much sooner in its lifecycle than the F/A-18A-D, which will optimize Fatigue Life Expended (FLE), flight hours and total landings so that they all converge at approximately the same time, which should align aircraft service life with fleet requirements.

Provide an update on the three phases of legacy F/A-18A-D airframe, major subsystems and avionics service-life assessment and extension programs, and a discussion regarding the estimated costs, implementation risks, schedule, and depot capability in executing these programs.

The F/A-18A-D SLAP showed that the airframe can fly to 10,000 hours with significant modifications and inspections to maintain airworthiness. The inspection results to date have matched the previously briefed models. The F/A-18A-D aircraft have been kept operationally relevant through upgrades.

SLEP goals of 10,000 flight hours will likely involve wholesale replacement of aircraft structure (center barrel, inner wings, etc.) as well as repairs and inspections. Squadron commanders manage each aircraft's service life (flight hours, wing root fatigue, landings, cats/traps) to ensure full utilization of available service life. The progress of the SLMP is reviewed periodically at the three-star level via the Naval Aviation Enterprise (NAE) process.

The F/A-18A-D SLEP Fiscal Year 2014 requirement is funded. The SLEP cost estimates have not changed from previous years. The F/A-18A-D SLEP effort has utilized a phased approach since inception. This approach addresses the most critical airframe requirements first to ensure timely fielding of priority inspections and modifications. This approach reduces both airworthiness and cost risks and allows for future program trade space to mitigate potential program-wide delays.

To meet fleet requirements prior to the completion of SLEP Phases A-C the F/A-18A-D airframe required an HFH inspection designed to extend the service life beyond 8, 000 FHs. HFH inspections have been ongoing for four years. The HFH inspection has been and continues to be a necessary effort to keep the aging F/A-18 A-D fleet flying and to meet resourcing requirements as aircraft reach 8,000 hours. The HFH suite continues to be revised as a result of completed SLAP and SLEP analysis. Ninety-six aircraft have completed the HFH inspection requirements and 83 are currently in work. Additional

pressures are being felt with an increasing number of F/A-18A-D aircraft reaching 8,000 flight hours and requiring extensive depot time to inspect, repair, and extend service life.

Furthermore, the Master Aviation Plan has F/A-18A-D operational commitments through 2030. To meet this plan a comprehensive SLEP is required to extend the service life of at least 150 F/A-18A-D to 10,000 flight hours. F/A-18A-D SLEP Phases A and B are complete and SLEP Phase C is now underway. Analysis thus far has identified flight safety critical areas of the airframe that will require inspections and modifications to reach service life goals of 10,000 flight hours. Installation of flight safety critical SLEP modifications began in Fiscal Year 2012 but the final SLEP configuration will not be fully determined until all the non-recurring engineering has been completed in Fiscal Year 2016. Overall, the SLEP Phase C effort is on schedule and is anticipated to complete in Fiscal Year 2016.

The DoN is conducting SLEP inspections/repairs at six locations. The six locations include: NAS Lemoore, Lemoore, CA; NAS North Island, San Diego, CA; NAS Jacksonville, Jacksonville, FL; Boeing, Cecil Field, Jacksonville, FL; MCAS Beaufort, Beaufort, SC; and NAS Oceana, Virginia Beach, VA. While less complex SLEP mods can be done at all sites, major SLEP modifications will be done concurrently during major depot events such as Center Barrel Replacement modifications or during other scheduled maintenance events. These major modifications are planned to be conducted at NAS North Island, San Diego, CA, and NAS Jacksonville, FL, Fleet Readiness Centers.

In order to maintain a tactical advantage, procurement and installation of advanced systems will continue. Joint Helmet-Mounted Cueing Systems (JHMCS), Multi-Function Information Distribution System (MIDS) and LITENING for USMC)) are being installed on selected F/A-18A-D aircraft. The Marine Corps is upgrading 56 Lot 7-9 F/A-18As and 30 Lot 10/11 F/A-18Cs to a Lot 21 avionics capability with digital communications, tactical data link, JHMCS, MIDS and LITENING.

The March 2013 Flight Hour and Inventory Report shows the average flight hours on DoN operational F/A-18 A-D models at 7,208, 6,371, 6,882, and 6,687 respectively.

Discussion on the health of the F/A-18A-F, EA-18G and AV-8B fleets.

F/A-18A-F/EA-18G

The F/A-18A-D has been a highly effective aircraft for the Navy and Marine Corps in OIF/OEF, and will continue as such in future conflicts. The F/A-18A-D aircraft have been kept operationally relevant through upgrades that include: Combined Interrogator Transponder to determine friend or foe, JHMCS, MIDS, Link-16 data-link, advanced

Integrated Defense Electronic Counter Measures, APG-73 radar and digital CAS. The aircraft was originally designed for 6,000 flight hours, and was extended to 8,000 flight hours by analysis. Extensions beyond 8,000 flight hours require inspections and/or repairs/modifications.

Although the F/A-18A-Ds are out of production, the existing inventory of 621 Navy and Marine Corps aircraft will comprise over half of Naval Aviation's TACAIR force structure through 2013. They are scheduled to remain in inventory through 2030. The SLMP continues to monitor and improve the health of the legacy F/A-18A-D fleet through analyses of TACAIR inventories and the management of usage rates at the squadron level. Eighty-two percent of the F/A-18A/D fleet has over 6,000 flight hours and 52 aircraft have flown more than 8,000 flight hours. To meet USN and USMC operational commitments out to 2026 for active squadrons, and through 2030 for USMCR, the DoN will SLEP 150 aircraft to extend their service life to 10,000 flight hours and continue HFH inspections.

The F/A-18E/F began Full Rate Production (FRP) in 2000. Eighty five percent of the total procurement objective has been delivered (482 of 563), which includes an additional 11 F/A-18E aircraft added by Congress in Public Law 113-6. Initial Operational Capability (IOC) was achieved in September 2001. The Fiscal Year 2014 President's Budget supports the 15th year of FRP. This installment includes planned procurement of EA-18G as follow-on to EA-6B (F/A-18E/F and EA-18G share a common Boeing production line).

The F/A-18E/F fleet has flown approximately 30 percent of the total flight hours available at the 6,000 hour limit and this will not be adequate to meet operational commitments out to 2035. As a result, the F/A-18E/F SLAP commenced in 2008 and will continue through 2018 with a goal of achieving 9000 hours.

Twenty-one EA-18G aircraft are planned to be procured in Fiscal Year 2014 to stand-up two additional Navy Expeditionary squadrons bringing the total to 10 carrier based squadrons and six expeditionary squadrons. Airborne Electronic Attack (AEA) Kits are procured via a separate contract. To date, 85 aircraft have been delivered; this represents 74 percent of the Inventory Objective of 135 aircraft. FRP was approved November 2009 and IOC was achieved in September 2009. The 10 carrier-based EA-18G squadrons will fulfill the USN requirements for airborne electronic attack; six expeditionary EA-18G squadrons will fill the joint, high-intensity AEA capability required by the Joint Forces Commander previously fulfilled by the USN and USMC EA-6B. EA-18Gs in-service have flown approximately five percent of the 7,500 total flight hours per aircraft and are meeting all operational commitments. To date, eight squadrons have completed or are in transition including three active component expeditionary squadrons. The first EA-18G squadron deployed in an expeditionary role in November 2010 in support of Operation New Dawn (OND) and redeployed in March 2011 in

support of Operation Odyssey Dawn (OOD)/Operation Unified Protector (OUP) combat operations. The first carrier-based EA-18G squadron deployed on board the USS George H.W. Bush (CVN 77) in May 2011.

Our adversaries' expanded use of the electromagnetic spectrum has increased the Joint requirement for expeditionary AEA, while at the same time increasing the operational necessity for the Carrier Strike Group to maintain its own organic AEA capability. The current jamming pods (ALQ-99) on the EA-18G have reached capability capacity and are growing obsolete from a sustainment point of view. Continued support for the Next Generation Jammer (IOC 2020) program development is required.

AV-8B

The current USMC inventory consists of 134 AV-8B aircraft. This number includes 34 Night Attack and 82 Radar aircraft, 16 TAV-8B trainers, one Day Attack upgrade, and one CNATT maintenance trainer. Of the total inventory, 31 aircraft (23 percent of USMC inventory) were out of reporting for Planned Maintenance Interval (PMI) and special re-work during CY 2012. The inventory decline is the result of combat losses last September at Bastion Airfield, OEF which accounts for the loss of eight AV-8Bs (six destroyed, two damaged) and increases the Ready for Tasking (RFT) gap significantly to a small community that is inventory constrained.

The AV-8B was originally a 6,000-hour airframe. In 2010, PMA-257 transitioned to a Fatigue Life Expended (FLE) model that more accurately measures actual stress history on individual airframe components, enabling the airframe to fly beyond 6,000 hours. Fleet averages for Night Attack, Production Radar, and Remanufactured Radar variants of the Harrier are 29.4 percent, 19.2 percent, and 31.8 percent FLE, respectively. However, the AV-8B is currently experiencing an increasing number of required modification and obsolescence issues. Intangibles that will affect service life are aircraft components that enter obsolescence or reach end of service life before the airframe planned fatigue life expended reaches 100 percent. Reduction in demand signal may also cause proportional reduction in sub venders and supply contractors.

The AV-8B was originally scheduled to stop flying in 2012. Sub-contractors and vendors had divested manufacturing lines of AV-8B material in anticipation of the 2012 sundown. Delays in the procurement of the Joint Strike Fighter coupled with the service life limits of the F/A-18 A-D necessitated the extension of the AV-8B to 2030 to avoid a TACAIR inventory shortfall. The DoN purchased all UK GR-9 aircraft, engines, parts supply, and support equipment in 2011. The GR-9 buy was a supply gap filler allowing NAVSUP immediate access to supply inventory, to develop long term sustainment strategies and give industry time to re-develop parts production lines to support the AV-8B to 2030. The purchase had an immediate impact in reducing supply backorders. GR-9 part

analysis is ongoing and will continue to support the AV-8B supply system over the next decade.

Discussion of current and future capabilities inherent in the F/A-18E/F that do not meet future Combatant Commander operational requirements for strike-fighter aircraft.

The F/A-18E/F is a highly capable aircraft designed to meet and defeat today's threats with growth potential for the future. The F/A-18E/F provides increased combat radius and endurance, greater weapons payload and increased survivability over Legacy F/A-18A-D aircraft. Block II (Lot 26 and up) aircraft, with the APG-79 Active Electronically Scanned Array (AESA) radar system and low observable technology, have extended air-to-air detection range and are capable of performing well in the range of threat environments, up to "anti-access". Block II Super Hornet includes upgraded avionics and sensors, some of which cannot be retrofitted to a Legacy F/A-18A-D aircraft. The Super Hornet will be a complementary platform on the nation's carrier decks with the F-35C into the 2030s and will meet current and projected requirements, with planned investments in the Fiscal Years 2014-2018 and beyond. These investments in F/A-18E/F flight plan increments, to include upgraded avionics, sensors and networks, will ensure relevancy against emerging and future threats.

JSF and F/A-18E/F capabilities are complementary, with an ideal balance of versatility, lethality, survivability, and capacity that will pace the threat and support foreseen Carrier Strike Group mission requirements through 2030. The timely delivery of JSF is critical to our ability to meet operational demands and to maintain the desired mix of strike fighter aircraft on our carrier decks.

Discussion regarding the analysis and probability of when the F-35B and F-35C are scheduled to declare Initial Operational Capability.

The Navy and Marine Corps, in accordance with the Fiscal Year 2013 National Defense Authorization Act (NDAA) Public Law 112-239, will provide updated IOC information on June 1, 2013.

The IOC dates for F-35B and F-35C are being determined by senior leadership. The Navy and Marine Corps require Service specific operational capabilities as defined in the F-35 Operational Requirements Document (ORD) prior to considering declaration of IOC. Achieving these capabilities are event driven and dependent upon the progress of the re-baselined F-35 program.

For the F-35B to achieve IOC, the Marine Corps requires: One squadron of ten F-35B aircraft with Block 2B software release and required spares, ground support equipment, tools, technical publications, and a functional Autonomic Logistic Information System

(ALIS) (including supporting peripherals); one squadron manned with trained/certified personnel capable of conducting autonomous operations; F-35B aircraft with the requisite performance envelope, mission systems, sensors, and weapon clearances; home base supporting infrastructure and facilities ready and capable of supporting and sustaining operations; qualifications/certifications required for deploying on F-35B compatible ships and to austere expeditionary sites; the ability to execute the TACAIR directed mission sets; and Joint Program Office and F-35 contractor procedures, processes, and infrastructure capable of sustaining operations of the IOC squadron. The reduced ramp rate has delayed the completion date of the Marine Corps' transition to the Joint Strike Fighter by over four years. The Marine Corps' IOC is event driven based on the key operational and sustainment capabilities required to support operations.

For the F-35C to achieve IOC, the Navy requires: One squadron of ten F-35C aircraft with Block 3F software release, full stealth and ORD compliant avionics/weapons capabilities (Block 3F) with the capability to execute the F-35C's primary mission sets; functional ALIS (including peripherals) and carrier integration modifications in place to support CVN deployments, airworthiness and flight deck certifications; trained aircrew, maintainers, and support personnel; and SDD/OPEVAL complete and Joint Program Office/F-35 contractor procedures, processes, and infrastructure capable of sustaining operations of the F-35C IOC squadron.

Discussion of the known risks and issues specifically related to the DoN regarding the development, fielding and deployment of the Autonomic Logistics Information System (ALIS) for sustaining the F-35 as it relates to maintenance and logistics operations.

F-35 Autonomic Logistics Global Sustainment (ALGS) is developed concurrently with the aircraft and ALIS is being used to support test, training, and operational squadrons today. As with any new system, there has been a performance learning curve associated with this new logistics support system and it is expected to continue to be functionally refined and improve performance. Currently, the Department is managing all key risk items. An overview of the primary ALIS issues and risks affecting the DoN are:

- ALIS 1.0.3, which is supporting block 1B/2A aircraft, was initially hampered by Certification & Accreditation (C&A) and data quality concerns. PEO(JSF) worked closely with the certification experts to mitigate the issues and have developed workaround solutions.
- ALIS 1.0.3 has limitations in the Prognostic Health Management (PHM) system. It is expected to be addressed in a future release of ALIS.
- ALIS 1.0.3 amended data construct does improve overall data integrity, but challenges remain with Mission Essential Functions List (MEFL). ALIS functionality is dependent upon the provision of accurately structured and populated logistics data (e.g., Air Vehicle Sustainment Data Build, Bill of

Material). At present, the DoN has identified a number of data quality shortcomings that are being addressed by the Original Equipment Manufacturer (OEM) and PEO(JSF) personnel and interim operating procedures have been instituted; permanent resolution of these issues is expected by fourth quarter CY2014.

- The Air Vehicle does not record all the flight data to the Portable Memory Device, which required an enhancement to ALIS 1.0.3 to enable tracking of life and aircraft health data. Manual PHM data entries have been instituted. At this early stage of operational flying, data mapping immaturity has led to a lower assessment of actual mission capability. Manual intervention has been required.

- DoN ALIS Deployment Suitability: PEO(JSF) is currently managing a USMC instituted initiative in regards to the deployment suitability of the existing ALIS baseline hardware design. The current ALIS baseline is too large for the Air Combat Element (ACE) to embark and disembark from an L-Class ship in support of Marine Air Ground Task Force (MAGTF) operations ashore. This initiative will afford squadron personnel the capability to transport ALIS with unit deployments. Deployable ALIS, Standard Operating Unit V2, is currently a unique requirement for the Marine Corps based on their expeditionary nature. The strategy to ensure functional deployability includes a three phase program of effort to develop Deployable ALIS. Phase 2A is complete and Phase 2B is currently on going which will finalize the deployable requirements and begin preliminary design. Phase 3 is targeted to be on contract by July 2013, which will complete a Preliminary Design Review (PDR) by the fourth quarter of Calendar Year 2013 and will have a production standard design ready for Authorization to Operate and Authorization to Connect (ATO/ATC) and delivery of initial capability by mid 2015.

- Successful Integration of Propulsion System Sustainment into ALIS: Currently the Propulsion System is managed by the OEM utilizing an independent contractor sustainment application. This is a recognized interim operating procedure until an integrated solution is introduced with a future ALIS release. The Air System and Propulsion System OEMs are developing software that will integrate their sustainment applications for the JSF within ALIS. Completion of this task is dependent upon the resolution of Air Vehicle and Off-Board system related integration challenges. The prime system integrator and the engine OEM are in the process of defining the remaining actions necessary to successfully integrate propulsion sustainment in ALIS 2.0.1, scheduled for release in fourth quarter of Calendar Year 2014. Achievement of this task is a priority for the Program and carries a high schedule risk.

Provide an update on the V-22 procurement program and contractor performance, and performance of the MV-22 during Operations Iraqi and Enduring Freedom.

The V-22 program continues to perform extremely well in the field and in production. In Fiscal Year 2012, the last year of the first Multi Year Procurement (MYP I) contract, industry delivered 37 V-22Bs - 29 MV(Marine Corps) and eight CV(Air Force) on or ahead of contract schedule. The first three MYP I lots are performing well and cost reduction initiatives are delivering expected results. The program is also on track to award a follow-on MYP contract (Fiscal Years 2013-2017) which will yield significant savings.

The V-22's strong performance in the field continues to be demonstrated on a daily basis. As of March 28, 2013, 190 of 360 aircraft have been fielded to the Marine Corps. The combined MV and CV fleet has accumulated more than 170,000 flight hours. The aircraft has been continuously deployed since 2007, and the MV-22 exhibited the lowest Class A flight mishap rate of any tactical rotorcraft in the Marine Corps over the last 10 years.

MV-22B squadrons supporting Operation Enduring Freedom (OEF) in Afghanistan and the Marine Expeditionary Units (MEU) aboard amphibious warships are seeing mission capable rates in the seventy percent range and are performing every assigned mission.

The effectiveness and survivability of this revolutionary, first-of-type MV-22B Osprey tilt-rotor has been repeatedly demonstrated across the globe. 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 to our nation. As an integral part of that seaborne presence, the MV-22B was able to transit over 130 nautical miles from the USS KEARSARGE to the objective area 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 the USS KEARSARGE. Combined with current self deployments from Okinawa to Thailand and Guam in support of bilateral exercises, and a 2,600 nautical mile round trip simulated MEDEVAC mission to a submarine the V-22 is changing the way Commanders operate inside and out of their battle space.

Update on the H-1 procurement program and contractor performance.

The Fiscal Year 2014 President's Budget requests $47.1 million in RDT&E, N for continued product improvements and $821.0 million in APN for 25 H-1 Upgrade aircraft: 15 UH-1Y and 10 AH-1Z 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 new production and a limited quantity of remanufacturing.

The H-1 Upgrades Program is replacing the Marine Corps' UH-1N and AH-1W helicopters with state-of-the-art UH-1Y "Venom" and AH-1Z "Viper" aircraft. The new Venom and Viper 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 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 aircraft achieved IOC in August 2008 and 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. The AH-1Z achieved IOC in February 2011. As of March 30, 2013, 104 aircraft (74 UH-1Ys and 30 AH-1Zs) have been delivered to the Fleet Marine Force; an additional 77 aircraft are on contract and in production. Lots 1- 6 aircraft deliveries are complete. The last two aircraft from Lot 7 (the first two AH-1Z Build New (ZBN) aircraft) will deliver in Fiscal Year 2014. Lot 8 deliveries are progressing on or ahead of schedule.

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 the inventory rather than removing them from service to begin the remanufacture process. The transition to an all ZBN airframe strategy began 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.

As a result of their commitment to the United States Marine Corps and the H-1 Program, the prime contractor has delivered 104 aircraft; keeping the program on budget and on schedule. On average, the prime contractor delivered the last 84 aircraft 33 days ahead of the contract schedule.

Update on the H-60S and H-60R program and contractor performance.

The Navy Helicopter force structure is based on the CNO-approved Helicopter Master Plan.

The MH-60S and MH-60R are currently in full rate production. The Multi-Year Contract (MY2) with Lockheed Martin (Mission Systems & Common Cockpits) and MY8 with Sikorsky (Airframe) have been approved and will be executed from Fiscal Year 2012 to Fiscal Year 2016. The MY2 results in 19.4 percent cost avoidance while the MY-8 results in 17.7 percent cost avoidance.

MH-60S Carrier Air Wing squadrons began their transition in 2007 and will be complete in 2016. Expeditionary squadrons completed their transition to the MH-60S in 2004.

MH-60S Block II IOC is realigned with Littoral Combat Ship Mine Countermeasures Mission Package (LCS MCM MP) IOC in Fiscal Year 2014. The requirement to tow Q-20 and OASIS systems was removed; non-tow Airborne MCM (AMCM) capabilities will be retained. MH-60S Block III Armed Helicopter reached IOC in June 2007.

The MH-60S is designed to support the Carrier and Expeditionary Strike Groups, LCS in Combat Logistics, Search and Rescue, Vertical Replenishment, SUW, AMCM, Combat Search and Rescue, and Naval Special Warfare mission areas.

MH-60R Carrier Air Wing squadrons began their transition in 2008 and will be complete in 2016. Expeditionary squadrons began their transition in 2012 and will be complete in 2018.

The MH-60R is designed to support Carrier and Expeditionary Strike Groups, Cruisers, Destroyers, and LCS in Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). It enables sea control and provides forward-deployed capabilities to defeat area-denial strategies, allowing joint forces to project and sustain power. MH-60R ASW improvements include upgrades to the Airborne Low Frequency Sonar (ALFS) reliability and APS-153 Automatic Radar Periscope Detection and Discrimination (ARPDD) capability.

MH-60R program of record was reduced from 291 to 280 aircraft. Further reductions will take MY quantities below the contractual minimums, necessitating contract renegotiation.

Small boat threats are driving aircraft SUW lethality and survivability requirements, such as the MH-60S M-197 fixed forward firing gun and MH-60R/S 2.75 inch rocket capability.

An update on the efforts related to the V-22 program concerning the redesign, qualification, manufacturing and fielding of more reliable parts and subsystems and how it relates to planned goals for reducing current operations and maintenance costs.

Component/subsystem redesign is an integral part of the MV-22B Program's plan for improving readiness and reducing operating costs. At the platform level, the MV-22B continues to meet its Key Performance Parameters (KPP) for reliability as set forth in the acquisition documentation, but continue aggressive efforts to improve component performance by analyzing inherent component reliability using the Critical Item Logistics Review (CILR) list. This disciplined, repeatable process has identified key components for improvement. Since July 2009, multiple component improvements have been incorporated and validated via on-aircraft performance with Mean Flight Hour Before Removal (MFHBR) improvements ranging from 50 percent to over 7,000 percent improvement. At the aircraft level, this has translated into a 28 percent improvement in Mission Capable rates from Fiscal Year 2011 to Fiscal Year 2012.

The MV-22B Cost Per Flight Hour (CPFH) Reduction Team has been reducing costs through a four pillared approach targeted at improving Maintenance Practices, Maintenance Planning, Repair Capabilities and Contract Strategies and works closely with the Reliability and Maintainability (R&M) teams to incorporate the improved components noted above. These efforts yielded an 18 percent reduction in MV-22B CPFH from Fiscal Year 2010 to Fiscal Year 2012 which will equate to billions of dollars in cost avoidance over the life cycle of the aircraft.

A summary of all Class A, B and C aviation-related safety issues, including recent mishaps, trends, and analysis occurring within the past year.

Naval Aviation Summary (Navy & Marine Corps) - The table below provides a summary of all Class A, B & C Flight mishaps from Oct 2011 through April 3, 2013. The rates are based on mishaps per 100,000 flight hours.

YEAR	Flight Hours	Class A	Class A Rate	Class B	Class B Rate	Class C	Class C Rate
FY 12	1,198,216	18	1.50	20	1.67	64	5.34
FY 13	565,544	7	1.23	11	1.95	40	7.07

The most recent DON Flight Class A Mishaps includes:

- 11 Mar 2013: (Grant County, WA) EA-6B crashed during a scheduled low-level flight. 3 fatalities.

- 20 Feb 2013: (Thailand) During confined area landing, CH-46E sustained a hard landing and subsequent fire. No fatalities.

- 23 Jan 2013: (NAS Lemoore, CA) F/A-18E sustained an in-flight left engine fire. Aircraft recovered safely. No injuries.

- 09 Jan 2013: (Twenty Nine Palms, CA) CH-46E sustained damage to rotor system during confined area landing. Aircraft destroyed. No fatalities.

- 13 Dec 2012: (Deployed) MQ-8B Fire Scout crashed during recovery to ship. (UAS)

- 12 Dec 2012: (NAS North Island) MH-60R sustained hard landing. No fatalities.

- 11 Oct 2012: (Luzon, PI) CH-46E destroyed in hard landing, roll-over and fire. No serious injuries.

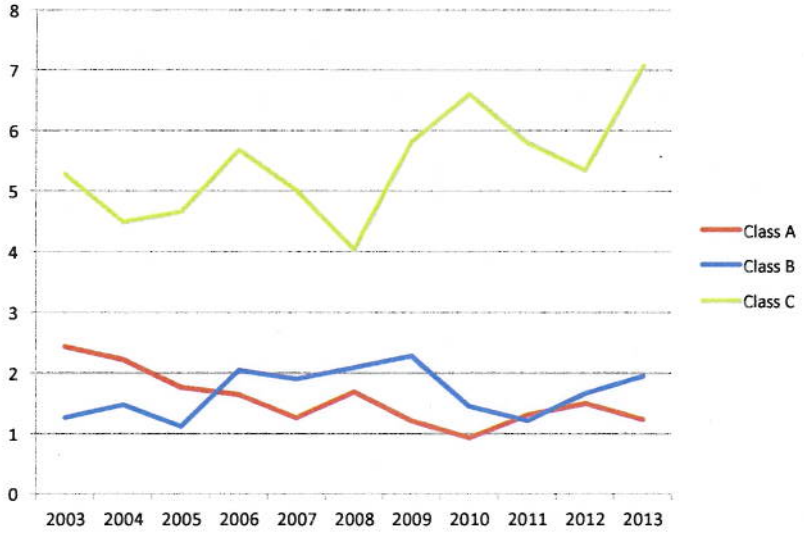
Recent DON Flight Related Mishaps (FRM) or Aviation Ground Mishaps (AGM) not included in above table or below Navy and Marine Corps charts:

- 27 Feb 2013: (Cherry Point OPAREA) Airborne Low Frequency Sonar Transducer Assembly departed MH-60R during ASW training flight. (FRM)

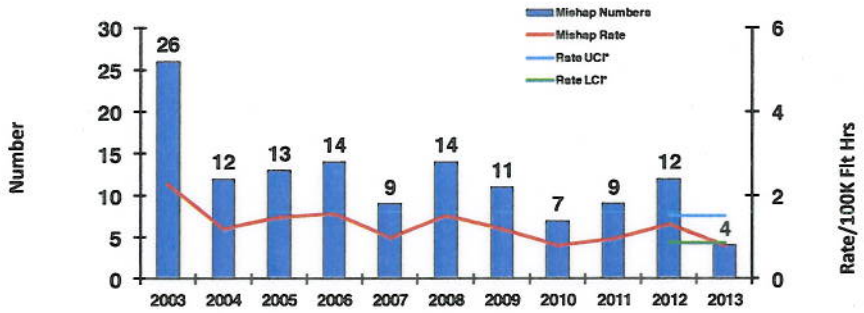
- 24 Jan 2013: (Off the Coast of Andros Island, Bahamas) Airborne Low Frequency Sonar Transducer Assembly departed MH-60R during in-flight operational check. (FRM)

- 06 Nov 2012: (MCAS Miramar, CA) F/A-18E in-flight physiological episode resulted in permanent total disability. (FRM).

DON Historical Mishap Rate Trend per 100K Flight Hours per Mishap Class (A.O. April 3, 2013)



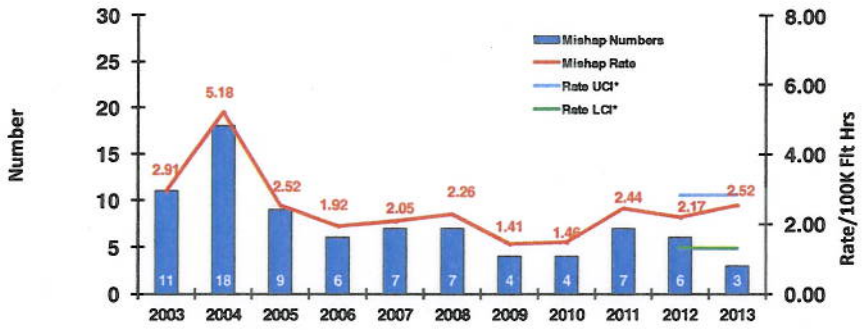
CLASS A FLIGHT MISHAPS



	3-Apr-13	3-Apr-12
CLASS A MISHAPS/MISHAP RATE FY COMPARISON:	4/0.78	3/0.66
FY12 MISHAPS/MISHAP RATE:	12/1.30	
10-YEAR AVERAGE (FY03-12) MISHAPS/MISHAP RATE:	12.70/1.39	

Class A Flight Mishap Historical Data for U.S. Navy

CLASS A FLIGHT MISHAPS



	3-Apr-13	3-Apr-12
CLASS A FM/FM RATE FY COMPARISON:	3/2.52	2/1.42
FY12 MISHAPS/MISHAP RATE:	6/2.17	
10-YEAR AVERAGE (FY03-12) MISHAPS/MISHAP RATE:	7.90/2.43	

Class A Flight Mishap Historical Data for U.S. Marine Corps