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RESPONSE TO

REQUEST FOR INFORMATION

ON

DEPARTMENT OF THE NAVY'S AVIATION PROCUREMENT PROGRAMS

PROVIDED

TO THE

TACTICAL AIR AND LAND FORCES

SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

MARCH 26, 2014

1. 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 (MAGTF). The Marines increased their flexibility and responsiveness by increasing the number of 16 aircraft F-35 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 in support of Navy and Marine Corps Fleet Replacement Squadron (FRS) training. 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 Reserve (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 the force structure demand exceeds the inventory of 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 shortfall associated with the Fiscal Year 2015 President's Budget shortfall is assessed as manageable. The Strike Fighter Shortfall

(SFS) is currently predicted to peak at approximately 35 aircraft in Fiscal Year 2023. The projected shortfall remains manageable primarily as a result of decreased F/A-18E/F utilization rates; life-extensions for F/A-18A-D aircraft as a result of successful completion of the High Flight Hour (HFH) inspections and repair; and proactive service life management by the type commander on an aircraft-by-aircraft basis.

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 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 Naval Aviation Enterprise (NAE) 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.

Our Navy and Marine Corps continue to adjust transition plans as F-35C procurement ramps are flattened. F-35B will replace the Marine Corps' AV-8B and F/A-18A-D aircraft. The last active Marine F/A-18 squadron is scheduled to transition in 2029 and the current Marine F/A-18 reserve squadron will not receive F-35Bs until Fiscal year 2030. Sustainment and relevancy funding is imperative to maintain the requisite operational capability of the F/A-18A-D and the AV-8B throughout the transition to the F-35.

2. A 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 fiscal year 2015-2019 future years defense plan for such program

The F/A-18E/Fs have flown approximately thirty-five 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 2015 President's Budget includes a request for $13.8 million in RDT&E and an additional $74.3 million throughout the FYDP, 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 align aircraft service life with fleet requirements.

3. 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 a combination of 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 Service Life Management plan (SLMP) is reviewed periodically at the three-star level via the Naval Aviation Enterprise (NAE) process.

The F/A-18A-D SLEP Fiscal Year 2015 President's Budget requests $55.7 million which fully funds the requirement. 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 requires a suite of High Flight Hour (HFH) inspections designed to extend the service life beyond 8, 000 FHs. HFH inspections have been ongoing for several years. The HFH inspection has been and continues to be a necessary effort to assess the material condition and airworthiness of the aging F/A-18 A-D fleet 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. 112 aircraft have completed the HFH inspection requirements and 124 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 aircraft 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 late Fiscal Year 2016. Overall, the SLEP Phase C effort is on schedule and is anticipated to complete in late Fiscal Year 2016.

The DoN is conducting SLEP inspections/repairs at seven locations including: NAS Lemoore, Lemoore, CA; NAS North Island, San Diego, CA; NAS Jacksonville, Jacksonville, FL; Boeing, Cecil Field, Jacksonville, FL; MCAS, Miramar, San Diego; 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 (FRC).

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), ALR-67v3, ALQ-214v5, 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.

Flying aircraft outside their design life is not without risk. In order to mitigate this risk, engineering analysis will continue to ensure our ability to address these discoveries, lessen burdens on the operating forces, and ensure needed aircraft availability. FRCs have challenges to execute the required number of High Flight Hour (HFH) inspections and SLEP modifications due to engineering and material constraints. While these depot throughput challenges continue, FRCs continue to succeed in extending aircraft service life by more than fifty percent. The Fiscal Year 2015 President's Budget requests $55.7 million for the Service Life Extension Program (SLEP).

4. 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 and will continue as such in future conflicts. In order to maintain warfighting relevancy in a changing threat environment, the DoN will continue to procure and install advanced systems on the F/A-18A-D such as Joint Helmet-Mounted Cueing Systems (JHMCS), ALR-67v3, ALQ-214v5, Multi-Function Information Distribution System (MIDS), APG-73 radar enhancements, Advanced Targeting FLIR (ATFLIR) upgrades, and LITENING for the Marine Corps on select F/A-18A-D aircraft. 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 618 Navy and Marine Corps aircraft will comprise approximately half of Naval Aviation's TACAIR force structure through 2014. 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-five percent of the F/A-18A-D fleet has over 6,000 flight hours and 77 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 up to 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 nine percent of the total procurement objective has been delivered (516 of 563). Initial Operational Capability (IOC) was achieved in September 2001. The Fiscal Year 2015 President's Budget supports the 16th 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 35 percent of the total flight hours available at the 6,000 hour limit. 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 9,000 hours.

The EA-18G is a critical enabler in the Joint force, bringing to the fight fully netted warfare capabilities that will provide electromagnetic spectrum dominance in an electro-magnetic maneuver warfare (EMMW) environment. Electronic attack capabilities, both carrier-based and expeditionary, continue to mature with three of sixteen EA-18G squadrons fielded, while we also continue development of the Next Generation Jammer (NGJ) to replace the legacy ALQ-99 Tactical Jamming System. To date, 99 aircraft have

been delivered; this represents seventy two percent of the Inventory Objective of 138 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 six percent of the 7,500 total flight hours per aircraft and are meeting all operational commitments. To date, three active component Navy expeditionary squadrons, seven of ten carrier based squadrons, and one reserve squadron are in or have completed transition to the EA-18G. 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.

AV-8B

The current Marine Corps 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 Center for Naval Aviation Technical Training (CNATT) maintenance trainer. These numbers support six operational squadrons of 14 aircraft each (PMAA of 84). The inventory decline is the result of combat losses in September 2012, at Bastion Airfield, Afghanistan. This attack accounts for the loss of eight AV-8Bs; six destroyed, two damaged. To date, the AV-8B fleet is averaging 11 aircraft out-of-reporting for Planned Maintenance Interval (PMI) and special re-work, with a five-year average of 18.8 percent per year. The inventory decline is the result of the combat losses.
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 average for all three single-seat variants of the AV-8B Harrier is 29 percent FLE. The AV-8B was originally scheduled to stop flying in 2012. Sub-contractors and vendors divested manufacturing lines of AV-8B material in anticipation of the 2012 sundown. Delays in the procurement of the Joint Strike Fighter (JSF), coupled with the service life limits of the F/A-18A-D, and recent changes in the Marine Corps' TACAIR transition order necessitated the extension of the AV-8B to avoid a TACAIR inventory shortfall.

This increased timeline for the AV-8B has resulted in an increasing number of component obsolescence issues. An issue that will affect service life is aircraft components that enter obsolescence or reach end of service life before the airframe's planned FLE reaches 100 percent. Due to expected supply shortfalls, the DoN purchased 57 GR-9 aircraft, 38 MK-107 engines, parts supply, and support equipment in 2011. The GR-9 buy was meant to fill a supply gap 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 until transition to the F-35 JSF is complete. To date, over 32,000 parts exceeding $35 million have been used from the GR-9 buy. The purchase had an immediate impact in reducing supply backorders. However, a reduction in demand signal from the GR-9 and other lifetime-type buys may cause additional reduction in sub vendors and supply contractors.

The AV-8B continues to be deployed in support of operational contingencies. Each Marine Expeditionary Unit (MEU) deploys with embarked AV-8Bs. The AV-8B, equipped with LITENING targeting pods and a video downlink to ROVER ground stations, precision strike weapons, 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. During the first half of Fiscal Year 2015 the AV-8B will receive the H6.1 Operational Flight Program enabling full integration of the Generation 4 LITENING targeting pod. During 2015, the program will also continue work on the H6.2 Operational Flight Program to integrate Federal Aviation Administration (FAA) compliant RNP/RNAV capability and correct additional software deficiencies identified through combat operations. As an out-of-production aircraft, the AV-8B program will continue its focus on sustainment efforts to mitigate significant inventory shortfalls, maintain airframe integrity, achieve full FLE, and address reliability and obsolescence issues of avionics and subsystems. The Airborne Variable message Formal (VMF) terminals will be installed in AV-8Bs to replace the current digital-aided close air support (CAS) technology. Additional efforts include tactical datalink and sensor improvements in support of operational contingencies until transition to the F-35.

5. 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 2015-2019 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.

6. The Assistant Secretary's evaluation of the F-35 program and major risks to the cost, schedule or performance of the program and the F-35 program's ability to meet initial and full operational capability dates.

The F-35 is essential to the future of Naval Aviation and the DoN remains firmly committed to both the F-35B and F-35C variants of the aircraft. We are closely monitoring all F-35 program aspects - inclusive of development, production, and sustainment to ensure the capability represented by this program is obtained at the lowest cost and at the earliest possible date.

The F-35 program continues steady progress toward meeting cost, schedule and performance requirements and commitments. We are paying particular attention to the ability to meet the IOC requirements and dates for both the Marine Corps and Navy, and to do so with an aircraft that is affordable to procure and sustain.

The overall composite unit cost of the aircraft continues to decrease with unit cost below Selected Acquisition Report (SAR) projections, and within planned budget planning factors. Projected sustainment costs remain a concern. In addition to revisiting all of the assumptions that have gone into our sustainment cost models, we are working with the JPO, and the Air Force, on discreet actions to reduce operating and sustainment costs. These activities include Level of Repair Analysis (LORA) for aircraft components; review of the business case for organic vs. commercial support in repairs, modifications, and engineering services; squadron manning; training requirements; pursuing Red Air alternatives; and focused effort on RAM improvements. Cost of the development program has stabilized, but is not without risk – largely tied to software development and aircraft testing.

Overall risk to meeting IOC for both the Marine Corps (2015) and the Navy (2019) is assessed as moderate. Risk is largely in the areas of software development, aircraft modifications, and system availability. The Marine Corps requires Block 2B software for their IOC configuration. There is currently approximately one month of risk associated with meeting the planned completion dates for both Block 2B developmental test completion and software delivery to operational squadrons. The Navy requires Block 3B software for their IOC configuration. The risk associated with meeting the planned FY18 completion of test for Block 3B is assessed at 4-6 months. Because of the serial nature of the software development process, any unexpected delays in Block 2B software delivery/maturity will have an impact to Block 3F delivery.

Meeting the Marine Corps IOC also requires modification of aircraft to bring them up to the required hardware configuration. The modifications are largely known; funding is in place; however, the schedule for modification has very little allowance for uncertainty or discovery. While technical risk is low, the schedule will require continued management over the next 12-18 months.

Meeting the IOC requirement for either service requires having sufficient numbers of fully trained pilots. While showing steady improvement over the last six months, aircraft reliability and maintainability rates remain less than what is required to meet the training plans. With improvements in the Autonomic Logistics information System (ALIS), increased utility of Prognostic Health Management (PHM), lessening of inspection requirements as additional flight and qualification testing is completed, and concerted effort in addressing mission degraders, the trend in availability is expected to improve.

7. Status of the F/A-18E/F and EA-18G production line and the Assistant Secretary's evaluation of the fighter production and engineering industrial base as the F/A-18 production line begins to close and prospects for future competition in fighter and attack aircraft;

The Boeing production line will remain open with the planned procurement of 21 EA-18G in Fiscal Year 2014 for delivery in 2016, with parts of the production line for manufacture of long lead items starting to shut down in Fiscal Year 2014. Although AP funding was received in the Fiscal Year 2014 Appropriation Act for 22 additional F/A-18E/F aircraft, the Navy does not have a requirement for additional F/A-18E/F aircraft, and therefore will be unable to obligate this funding.

8. 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.

The F-35 has been developed with an Autonomic Logistics Information System (ALIS) that is being used to support test, training, and operational squadrons today. As with any new system, there has been a learning curve, and functionality and performance are continuously improving. Examples of current issues include limitations in the Prognostic Health Management (PHM) system, maintenance fault code adjudication, and system latency. Two significant improvements are currently under development:

- ALIS Deployment Suitability: The current ALIS baseline is too large to embark and disembark from an L-Class ship. Efforts have been ongoing to improve the deployment suitability of the existing ALIS baseline hardware design. Based on these efforts a deployable version of ALIS, referred to as ALIS Squadron Operational Unit version 2 (SOU-V2), is scheduled for delivery in April 2015 to support F-35B IOC.

- Full Integration of Propulsion System Sustainment into ALIS: Currently the Propulsion System is managed by the original equipment manufacturer (OEM) using a contractor operated sustainment application. This is a recognized interim operating procedure until an integrated solution is introduced with a future ALIS release.

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

The V-22 program continues to perform extremely well in the field and in production. In 2013, industry delivered 41 V-22s; 34 Marine MV variants and seven Air Force CVs. These aircraft were procured under a successfully executed Multi-Year Procurement (MYP) contract. In all, 175 V-22s were procured through MYP-I at a savings of over $400M when compared to single-year procurement. Capitalizing on this success, in 2013 the program awarded a second MYP contract which will procure 101 V-22s, 93 MV variants and eight CV variants, for fiscal years 2013 through 2017. MYP-II is forecast to save nearly $1B over single-year procurements.

The V-22's strong performance in the field continues to be demonstrated on a daily basis. In October 2013, the combined MV and CV fleet surpassed the 200,000 flight hour milestone and it is on pace to be one of the safest of any DoD aircraft dating back to the 1960s. As of March 12, 2014, 219 of the Program of Record's 360 aircraft have been delivered to the Marine Corps. The aircraft has been continuously deployed since 2007, and as of mid-2013 all Marine Expeditionary Units (MEU) are equipped with MV-22s. MV-22 squadrons supporting Operation Enduring Freedom (OEF) in Afghanistan posted a 2013 average mission capable rate of 80%.

The effectiveness and survivability of this revolutionary, first-of-type MV-22 Osprey tilt-rotor has been repeatedly demonstrated across the globe. Whether based ashore or afloat, the aircraft has given commanders unprecedented operational reach. In OEF, the aircraft has sustained battle damage due to enemy fire on numerous occasions, and in every instance has been able to continue safe flight to landing in secure areas. Because of its unique capability set, in April 2013 MV-22s were assigned to the newly formed Special Purpose Marine Air Ground Task Force – Crisis Response (SPMAGTF-CR) AFRICOM which deployed to Morón, Spain to provide a quick reaction force in response to theater requirements. In May 2013, the first MV-22 was delivered to Marine Helicopter Squadron One (HMX-1) in support of the Presidential mission. By year's end, seven MV-22s were at HMX-1 and had participated in multiple successful deployments. More recently, in November 2013, Okinawa based MV-22s quickly self-deployed to the Republic of the Philippines in support of Operation Damayan, delivering relief supplies and evacuating citizens from typhoon ravaged areas.

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

The Fiscal Year 2015 President's Budget requests $44.1 million in RDT&E,N for continued product improvements and $859.7 million in APN for 26 H-1 Upgrade aircraft: 15 UH-1Y and 11 AH-1Z. The program is a key modernization effort designed to resolve existing safety deficiencies and enhance operational effectiveness of the H-1 fleet. The 85 percent commonality between the UH-1Y and AH-1Z will significantly reduce life-cycle 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 remanufactured aircraft.

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 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 integrate these airframes, sensors, and weapons systems together with ground combat forces and other capable DoD aircraft. Integration of low-cost weapons such as the Advanced Precision Kill Weapon System II (APKWS II) has increased 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 February 27, 2013, 127 aircraft (90 UH-1Ys and 37 AH-1Zs) have been delivered to the Fleet Marine Force; an additional 58 aircraft are on contract and in production. The last two aircraft from Lot 7 will deliver in March/April 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 aircraft mix is 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.

11. 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 production program continue to deliver on-cost and on-schedule with squadron transitions continuing through 2016 under Multi-Year Contract (MY2) with Lockheed Martin (Mission Systems & Common Cockpits) and MY8 with Sikorsky (Airframe). When transition is complete, there will be 38 Navy Seahawk squadrons with 275 MH-60S's and 251 MH-60R's.

To date, 245 of the 275 MH-60S's have been delivered to the fleet providing enhanced capabilities in the primary mission areas of Mine Warfare and Surface Warfare including Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat response capabilities. Secondary mission areas include Combat Search and Rescue, Support to Special Operations Forces, Vertical Replenishment, logistics support, personnel transport and Medical Evacuation.

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 Organic Airborne Mine Counter measure capability (OAMCM) is aligned with Littoral Combat Ship Mine Countermeasures Mission Package (LCS MCM MP) IOC in Fiscal Year 2015. OAMCM systems for the MH-60S include the Airborne Laser Mine Detection System (ALMDS) and the Airborne Mine Neutralization System (AMNS).

MH-60S Armed Helicopter capability reached IOC in June 2007 and currently is capable of employing Hellfire Missiles, M-198 20MM Fixed Forward Firing Gun, GAU-21/M-240 crew served door mounted machine guns and 2.75” unguided rockets. Advanced Precision Kill Weapon System (APKWS II) guided 2.75” rockets will EOC in 2014.

The MH-60S Test Program consists of numerous system upgrades and Pre-Planned Product Improvements including: Airborne Mine Countermeasures (AMCM); Armed Helicopter FAC/FIAC Defense; and a Service Life Assessment Program.

Additionally, 180 of the 251 MH-60R's have been delivered to the fleet providing enhanced capabilities in the primary mission areas of Undersea Warfare and Surface Warfare, including FAC/FIAC threat response capabilities. Secondary mission areas include Naval Surface Fire Support, Search and Rescue, Vertical Replenishment, Logistics Support, Personnel Transport and Medical Evacuation.

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 2015.

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. ASW weapons include the MK-46 and MK-54 torpedoes.

For the SUW mission, the MH-60R is equipped with Hellfire Missiles and GAU-21/M-240 crew served door mounted machine guns. IOC for 2.75" rockets is planned for 2015.

The MH-60R Test Program consists of numerous system upgrades and Pre-Planned Product Improvements including: Automatic Radar Periscope Detection and Discrimination (ARPDD); CDL Hawklink/ SAU-07-000; Digital Rocket Launcher (DRL) with Advanced Precision Kill Weapon System (APKWS II); Helicopter Infra-Red Suppression System (HIRSS); and Instrument Landing System (ILS).

12. **An update on the CH-53K program and contractor performance.**

The Fiscal Year 2015 President's Budget requests $573.2 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, has nearly completed assembly of the first five test aircraft; one Ground Test Vehicle (GTV) and four Engineering Development Model (EDM) aircraft. In December 2013, the program entered Developmental Test. The GTV has successfully completed numerous ground test requirements, to include the "Bare Head Light-Off." The program is currently on schedule to execute its first flight by the end of 2014. During Fiscal Year 2015, the program will continue to execute developmental test flights, deliver the final EDM, and start assembly of System Demonstration Test Article (SDTA) aircraft which will be production representative aircraft utilized for Operational Test.

As is typical in developmental programs, discovery of technical issues at the system level and component/subsystem level has delayed some component qualifications leading to test schedule delays. As a result, the program is behind on subassembly deliveries and qualification test completions required to maintain the aggressive program schedule. The

program is actively pursuing plans to resolve these issues, recover schedule and execute first flight by the end of 2014.

13. **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 and subsystem redesign is an integral part of the MV-22 program's plan for improving readiness and reducing operating costs. At the platform level, the MV-22 continues to meet its requirement for reliability as set forth in the acquisition documentation. Additionally, the MV-22 program continues aggressive efforts to improve component performance by analyzing inherent component reliability using the Integrated Logistics Support Management System (ILSMS), and focusing on aircraft readiness and operating cost. 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 Between Removal (MFHBR) improvements ranging from 284 percent to over 445 percent in 2013. Even as the program's flight hour requirements continue to grow and additional mission sets have been added to the fleet's requirements, the MV-22's component reliability rates are improving. Overall, the average mission capable rate has increased 14 percent from 2010-2013.

The MV-22 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. The team works closely with the reliability and maintainability (R&M) teams to incorporate the improved components noted above. From Fiscal Year 2010 through 2013, these efforts have yielded a 14 percent reduction in MV-22 CPFH, which will equate to billions of dollars in cost avoidance over the life cycle of the aircraft.

14. 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 October 2012 through March 12, 2014. 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 13	1,084,016	14	1.29	15	1.38	81	7.47
FY 14	474,653	8	1.69	11	2.32	35	7.37

The most recent DON Flight Class A Mishaps include:

- 01 March 2014 (Fallon, NV): A USMC F/A-18C on loan to NSAWC crashed during training in the range complex. One fatality.
- 17 January 2014 (NAS Lemoore, CA): F/A-18E sustained brake fire on aborted takeoff. No fatalities.
- 15 January 2014 (off of the Virginia Capes): F/A-18E crashed during ULT training flight. No fatalities.
- 08 January 2014 (off of the Virginia Capes): MH-53E crashed while conducting mine warfare operations. Two survivors and three fatalities.
- 16 December 2013 (Japan): MH-60S executed autorotation due to loss of tail rotor drive. No fatalities.
- 15 December 2013 (Atlantic & Environs): Unmanned MQ-8B crashed at sea.
- 04 November 2013 (NAS Pensacola, FL): T-45C crashed prior to runway after reporting an engine flameout. No fatalities.
- 24 October 2013 (Patuxent River, MD): Unmanned MQ-8B sustained a hard landing from a hover following takeoff during a test flight.

There are no recent DoN Class A Flight Related Mishaps (FRM) or Aviation Ground Mishaps (AGM).

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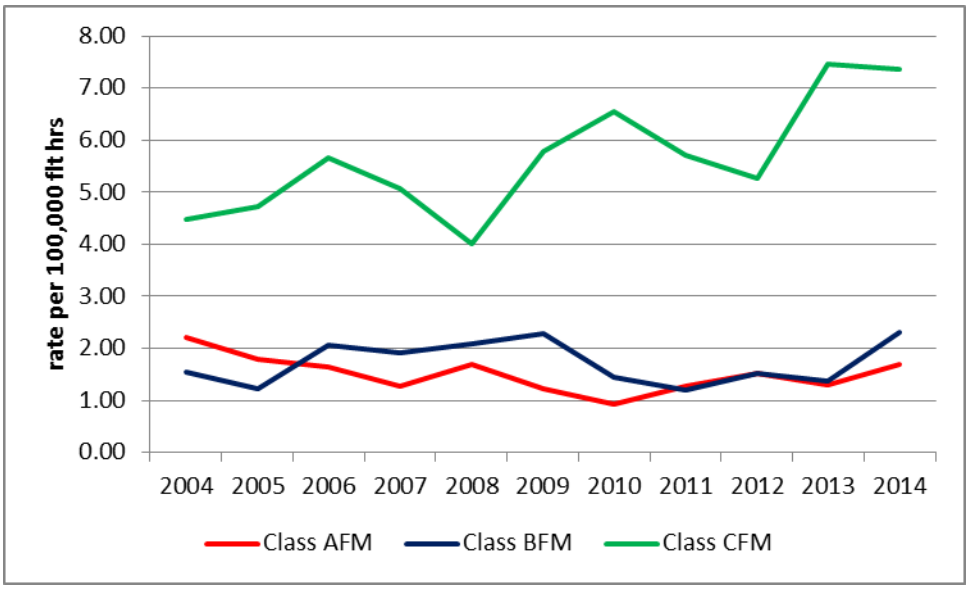
DON Historical Mishap Rate Trend per 100K Flight Hours per Mishap Class (A.O. March 12, 2014)



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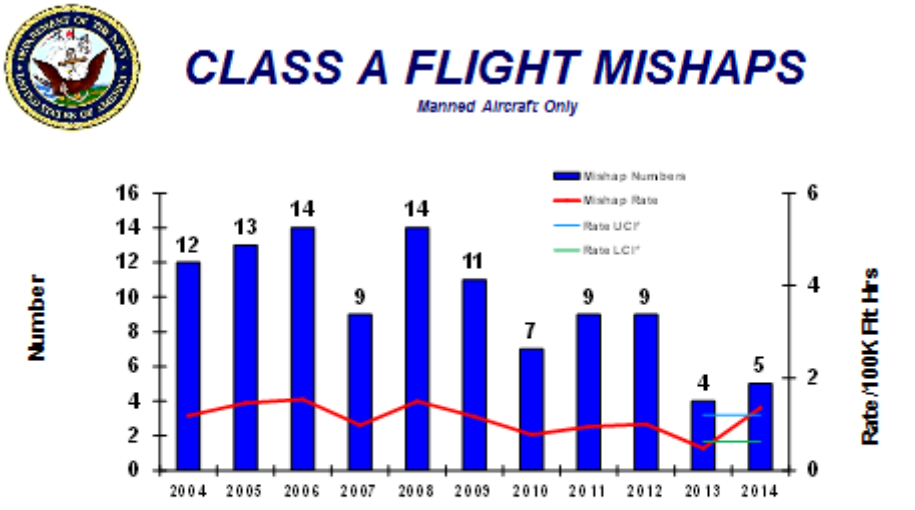

	10-Mar-14	10-Mar-13
CLASS A MISHAPS/MISHAP RATE FY COMPARISON:	5/1.36	2/0.56
FY13 MISHAPS/MISHAP RATE:	4/0.48	
10-YEAR AVERAGE (FY04-13) MISHAPS/MISHAP RATE:	10.20/1.10	

*see last slide for definition of UCI/LCI

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

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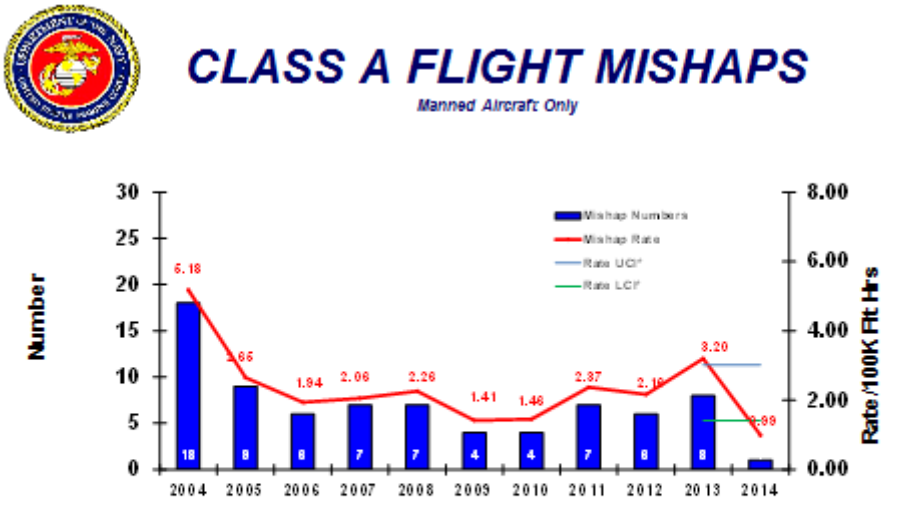

	10-Mar-14	10-Mar-13
CLASS A FM/FM RATE FY COMPARISON:	1/0.99	3/2.78
FY13 MISHAPS/MISHAP RATE:	8/3.20	
10-YEAR AVERAGE (FY04-13) MISHAPS/MISHAP RATE:	7.60/2.47	

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

15. Status of the MQ-4C Triton program and changes since last year.

The Fiscal Year 2015 President's Budget postpones the MQ-4C Triton (formerly known as BAMS or Broad Area Maritime Surveillance) LRIP from Fiscal Year 2015 to Fiscal Year 2016. The Fiscal Year 2015 President's Budget requests $498 million in RDT&E,N to continue Triton SDD and $37.5 million APN for procurement of long-lead materials for the first lot of LRIP aircraft. Due to software integration delays during initial testing, the program experienced a year-long delay to the start of flight testing. A program replan has been completed and the program remains executable within current funding levels. Triton will start establishing five globally-distributed, persistent maritime ISR orbits beginning in Fiscal Year 2017. MQ-4C Triton test vehicles have completed 12 test flights as of February 25, 2014 and are on schedule to begin developmental testing later this year. This rigorous integrated flight test program will support Milestone C planned for Fiscal Year 2016. 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 UAS 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, the Broad Area Maritime Surveillance Demonstrators, or BAMS-D, have been deployed to CENTCOM's AOR for over five years. BAMS-D recently achieved over 10,000 flight hours in support of CENTCOM ISR tasking. These demonstration assets are adequate to cover all Navy needs through Fiscal Year 2016.

16. A list of all DON aircraft program funding shortfalls that are currently in the fiscal year 2015 through 2019 future years defense plan, as submitted, that would not permit full program scope execution as currently planned.

In accordance with Secretary of Defense direction, the Office of the Secretary of Defense will be submitting all Service Unfunded Priority Lists via separate correspondence.