

**Annual Aviation
Inventory and Funding Plan**

Fiscal Years (FY) 2013-2042

March 2012

Preparation of this study/report cost the
Department of Defense a total of
approximately \$1,047,752 in Fiscal Years
2011 - 2012.

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Annual Aviation Inventory and Funding Plan

Part I – Executive Summary

Introduction

Section 231a of title 10, United States Code, as amended by section 1069 of the National Defense Authorization Act for Fiscal Year 2012, Public Law 112-81, requires the Secretary of Defense to submit an annual, long-term aviation plan for fixed-wing and rotary-wing aircraft, to include unmanned systems, for all Services and for combatant commanders that have aircraft assigned to them. This report responds to that requirement.

Guided by the new strategic guidance, Sustaining U.S. Global Leadership: Priorities for 21st Century Defense, and by the January 2012 Defense Budget Priorities and Choices, this plan represents the Department's commitment to a balanced force: one that is able to meet the unique demands of current conflicts, while providing the flexibility to respond to a broad spectrum of future challenges.

The FY 2013-2017 Future Years Defense Program (FYDP) and the long-term aviation force structure and funding plans presented in this document are shaped by the following primary missions defined in the new strategic guidance:

- Counter Terrorism and Irregular Warfare;
- Deter and Defeat Aggression;
- Project Power Despite Anti-Access/Area Denial Challenges;
- Counter Weapons of Mass Destruction;
- Operate Effectively in Cyberspace;
- Operate Effectively in Space;
- Maintain a Safe, Secure, and Effective Nuclear Deterrent;
- Defend the Homeland and Provide Support to Civil Authorities;
- Provide a Stabilizing Presence;
- Conduct Stability and Counterinsurgency Operations; and
- Conduct Humanitarian, Disaster Relief, and Other Operations;

Summary of the Annual Plan and Certification

Changes in technology and organizational structure make categorizing aircraft into bins of like capability increasingly difficult. However, this aviation force structure plan provides the diverse mix of aircraft needed to carry out the ten missions identified above. The capabilities provided by aircraft identified in this plan reflect five principal investment objectives identified below.

- Meet the demand for persistent, multirole intelligence, surveillance, and reconnaissance (ISR) capabilities;
- Provide sufficient enabler capability and capacity;
- Acquire fifth-generation fighter/attack aircraft while maintaining sufficient inventory capacity;
- Modernize long-range strike (LRS) capabilities; and
- Emphasize modernization and readiness.

The FY 2013-2042 aviation plan is consistent with the tenets of the January 2012 Defense Strategic Guidance; it meets the national security requirements of the United States. The Department's FY 2013 budget request and the associated FY 2013-2017 FYDP provide the requisite funding to implement the aviation investment plan through FY 2017 for all programs of record.

Annual Aviation Inventory and Funding Plan

Part II – FY 2012 Report

The report presents:

- A current year description of the aviation force structure, including active mission, training, and test aircraft.
- A detailed aviation plan for the Departments of the Air Force, Navy, Army, and United States Special Operations Command for both fixed and rotary wing assets necessary to meet the national military strategy of the United States. The plan includes legacy aircraft, aircraft in procurement, and aircraft projected to begin development in the next few years.
- Estimates of the annual RDT&E, procurement, operations and maintenance, and military construction funding necessary to achieve the planned aviation inventory and to operate, maintain, sustain, and support this aviation inventory.

The majority of modern platforms have the ability to perform across many traditional mission sets (e.g. the surveillance and light-strike capability of the MQ-9 in uncontested environments, and the cargo and aerial refueling capability of the KC-130J Super Hercules). The multirole nature of our assets makes them adaptive, fostering mission flexibility for the joint force.

Force Structure Requirements

The Department's FY 2013-2042 aviation plan provides the mix of forces and capabilities to meet the broad array of security challenges the nation faces. The plan represents the Department's ongoing commitment to support the joint force wherever it might be deployed and in whatever missions it is called on to perform, from the current operations in Afghanistan, to humanitarian relief efforts in various countries, to preparations for potential conflicts against adversary states. Accordingly, the aviation plan provides the aircraft needed to cover the full complement of operations that U.S. military forces could undertake in the decades ahead, and it will evolve as security needs change.

Consistent with this vision, the FY 2013-2042 aviation plan provides the capabilities needed to meet current and projected national security objectives, while prudently balancing security risks over time and against fiscal realities. The aviation plan first and foremost provides the capabilities needed to prevail in today's conflicts. The nature of the wars in Afghanistan and Iraq—with enemies hiding among populations, manipulating the information environment, and employing a mix of tactics and technology—provides a glimpse into the operational demands of potential future conflicts.

The aviation plan also procures the right aircraft at the right time to manage risk against emerging anti-access threats. Beyond the challenges U.S. forces confront today, potential adversaries are acquiring a wide range of sophisticated weapons and supporting capabilities that, in combination, could impede the deployment of U.S. forces to a conflict and blunt the

operations of those forces that do deploy forward. In planning for an uncertain future, the key consideration is ensuring that the United States possesses the aviation capability and capacity to deter conflict and, should deterrence fail, win wars.

Investment Objectives

In keeping with the Department's desire to provide a flexible and balanced force, the aviation plan provides a diverse mix of aircraft. The capabilities provided by these aircraft correspond with five principal investment objectives as follows:

- Meet the demand for persistent, multirole ISR capabilities;
- Provide sufficient enabler capability and capacity;
- Acquire fifth-generation fighter/attack aircraft while maintaining sufficient inventory capacity;
- Modernize long-range strike capabilities; and
- Emphasize modernization and readiness.

These objectives are discussed in more detail in the sections below.

- **Meet the demand for persistent, multirole intelligence, surveillance, and reconnaissance (ISR) capabilities.** The aviation plan's emphasis on long-endurance, unmanned ISR assets—many with light-strike capabilities—is a direct reflection of recent operational experience and combatant commander (COCOM) demand. The number of aircraft in this category—R/MQ-4 Global Hawk-class, MQ-9 Reaper, MQ-1 Predator-class unmanned aircraft systems (UAS) — will grow from approximately 445 in FY 2013 to approximately 645 in FY 2022. This 45 percent increase will be effectively multiplied by capability improvements afforded by acquiring vastly improved sensors and replacing Air Force MQ-1s with more capable MQ-9s. The increase of Air Force MQ-1B and MQ-9 platforms will enable the establishment of 65 orbits by the end of FY 2014. Moreover, the Air Force will maintain manned ISR aircraft such as the U-2, JSTARS, and RIVET JOINT. In addition to funding the MQ-4C Broad Area Maritime Surveillance (BAMS) aircraft, the Navy is in the early stages of developing an Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) system to provide persistent ISR and precision strike. The Navy is also recapitalizing its aged fleet of maritime patrol aircraft with the P-8 Poseidon. The P-8 will be complemented in the maritime and littoral roles by the MQ-4C. In addition, the Army will buy 164 MQ-1C Gray Eagle unmanned aircraft between FY 2013 and FY 2022 to provide persistent ISR and strike capabilities in direct support of ground forces.

The substantial growth in ISR platforms represented above does not portray the full scope of the expansion of ISR capabilities that will occur in the near-term, as the surveillance platforms discussed here only include Groups 4 and 5. These two groups, which typically

have longer endurance, higher speeds, and larger payloads, do not include the myriad of smaller systems procured or being procured by the services.¹

- **Provide sufficient enabler capability and capacity.** A second key priority involves investing in aviation enablers, including air mobility assets (aircraft performing airlift or aerial-refueling missions, or both), electronic warfare aircraft, and airborne early warning aircraft. Air mobility provides the nation the agility to deploy, employ, and sustain military power anywhere in the world, at a speed and tempo that adversaries cannot match. Our tanker-airlift inventory is relatively stable, despite the divestiture of some C-5s and C-130s, and the Services continue to modernize their tanker-airlift inventories, which are projected to remain viable through the years covered by this plan. The Air Force has begun recapitalizing the tanker fleet with plans to procure 83 KC-46A tankers by FY 2022. Deliveries of planned KC-46As will be complete at 179 aircraft by 2029; later tanker procurement will be the result of a future contract award. Electronic warfare aircraft deny situational awareness to opponents by jamming their radars and communications. The Navy will recapitalize its electronic warfare capabilities, resulting in a total of 114 EA-18G Growlers. Airborne early warning aircraft provide advance warning of approaching opponents, vector aircraft to attack opposing forces, and conduct area surveillance, intercept, search and rescue, communications relay, and strike control missions. The USAF is sustaining its fleet of airborne early warning aircraft, while the Navy is recapitalizing its fleet of airborne early warning aircraft with the E-2D Advanced Hawkeye aircraft carrying new radars.
- **Acquire fifth-generation fighter/attack aircraft while maintaining sufficient inventory capacity.** Legacy fighter/attack aircraft are important today, as evidenced by their involvement in the current operations in Iraq and Afghanistan. However, the capability limitations of 4th generation aircraft against anti-access threats make them less survivable in the future, hence the Department's emphasis on 5th generation capabilities. The Department's fifth-generation assets will grow from about 7 percent of the current force of manned fighter/attack aircraft to about 25 percent by FY 2022. The Joint Strike Fighter (JSF) will account for the bulk of the DoD's fifth-generation inventory. This aviation plan reflects revised planning for the JSF and incorporates the Department's latest estimates to fund the additional system development and demonstration needed to complete design and testing as well as reduce the risk of procuring aircraft too early in their design. The DoN slowed the F-35 production ramp to meet top line budget requirements and address programmatic risk due to concurrent testing and production. The reduction of F-35B/Cs is mitigated through management of strike fighter inventory across the Department and in coordination with the U.S. Air Force. The DoN continues to pursue initiatives through supply and service life management programs to extend the life of its legacy aircraft. By FY 2042, almost all of today's "legacy" force will have retired and the Department will have begun recapitalization of its fifth-generation force. Because long term projections involve inherent uncertainties, the Department is continuing to evaluate projected threats and will maintain the agility to adopt alternative means for defeating those threats.

¹ Group 4 UAS typically operate below 18,000 feet Mean Sea Level and exceed 1320 lb. Group 5 UAS typically operate above 18,000 feet Mean Sea Level and exceed 1320 lb.

- **Modernize long-range strike capabilities.** The enduring need for long-range attack capabilities will be met by a combination of current and future aircraft and weapons systems. The current fleet of Air Force bombers continues to be modernized so that it can retain long range strike capabilities through the 2030s. To deter and defeat anti-access threats, DoD is creating a long-range strike family of systems, including a program to develop a new penetrating, nuclear capable bomber. The current goal is to achieve an initial capability in the mid 2020s, and to hold down the unit cost to ensure sufficient production (80 to 100 aircraft) and a sustainable bomber inventory over the long term.
- **Emphasize modernization and readiness.** The 2013 President’s Budget heavily emphasizes modernization and readiness. This plan reflects the difficult decisions made to remain aligned with strategic priorities while meeting budgetary goals. For example, eliminating excess airlift capacity by retiring aging C-5As and C-130s will result in a more modern, standardized fleet. Similar adjustments will retire older, limited role tactical aircraft while upgrading and extending the service life of newer F-16 aircraft and continuing modernization of the F-22.

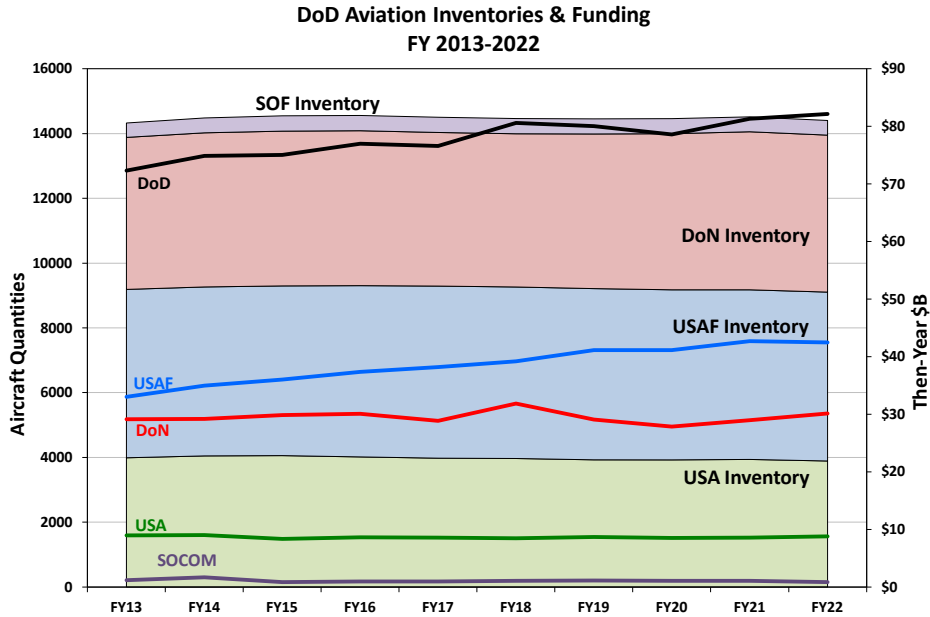
Aircraft Investment Plan

Force-Wide Perspective. The Department’s aviation inventory, broken out by category, is shown in the table below for each fiscal year through FY 2022. Total aviation force levels will be relatively constant across the period. Inventory levels are subject to change in response to operational needs, industrial base considerations, and fiscal constraints.

**Aviation Inventory
FY 2013-2022**

Inventory	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Fighter / Attack	3567	3600	3615	3614	3602	3512	3465	3448	3441	3416
Attack Helicopter	882	860	882	886	906	881	906	918	957	966
Airlift / Cargo / Utility	4459	4556	4590	4581	4528	4533	4552	4605	4598	4589
Combat Search and Rescue	152	151	158	162	158	158	149	149	149	149
Air Refueling	528	524	522	521	531	538	531	529	533	536
Long Range Strike	159	158	157	156	156	156	156	156	155	154
Anti-Surface/Submarine Warfare	603	632	633	637	644	677	683	673	658	654
Trainers	2377	2320	2254	2210	2190	2179	2158	2123	2116	2081
ISR / Scout / C4	1169	1236	1276	1333	1330	1371	1399	1406	1460	1418
Special Operations Forces	444	459	473	471	470	470	466	465	460	452
Total	14340	14496	14560	14571	14515	14475	14465	14472	14527	14415

The aviation plan is fiscally prudent. As shown in the chart below, total aviation funding will amount to \$770 billion across the period. Annual funding levels will peak at \$80 billion in FY 2022. All funding is in then-year dollars. The funding projections encompass RDT&E, procurement, operations & maintenance, and military construction. In the chart below, and numerous subsequent charts, funding is shown as colored lines, while inventory takes the form of a sand chart. Funding includes RDT&E, procurement, MILCON, and O&M.



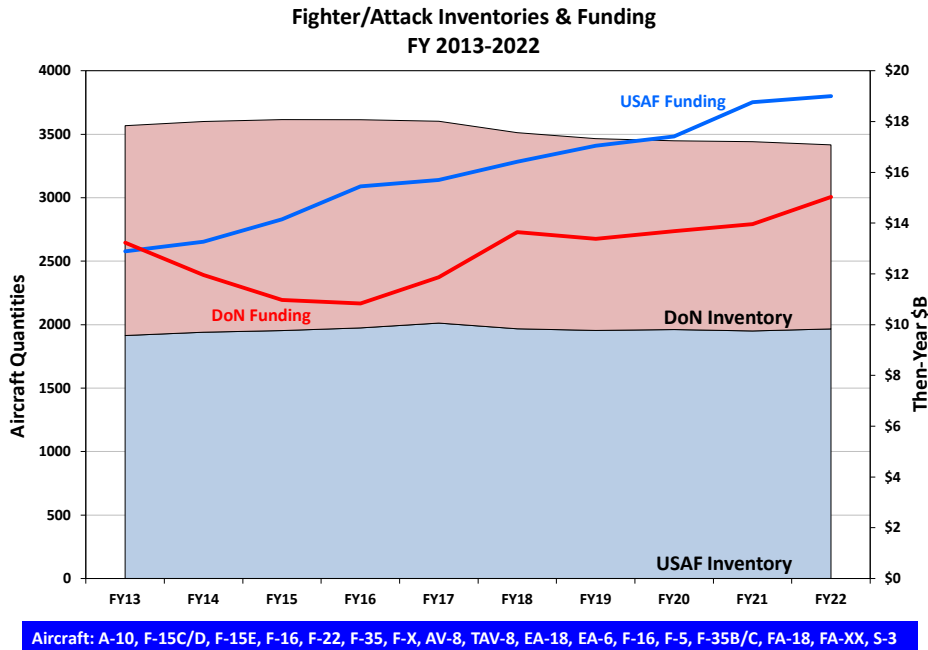
Fighter/Attack Aircraft

The following tables show Fighter/Attack aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Fighter/Attack	Air Force	DoN
	A-10, F-15C/D, F-15E, F-16, F-22, F-35, F-X	AV-8, TAV-8, EA-18, EA-6B, F-16, F-5, F-35B/C, FA-18, FA-XX, S-3

2012 Fighter/Attack Aircraft Inventory

Category	Inventory	
	Air Force	DoN
Total Aircraft	2014	1360
Mission	1201	661
Training	409	325
RDT&E	105	62
Backup, Attrition Reserve, and Other Primary aircraft	299	312
Active Component	1280	1276
Reserve Component	734	84



The above chart depicts annual fighter/attack aircraft inventory and funding projections over FY2013 – 2022 broken out by military department. In aggregate, the fighter/attack inventory will decline by about four percent over the FY2013 – 2022 period, while becoming considerably more modern. That trend reflects ongoing and planned efforts to retire legacy fighter/attack aircraft in order to achieve the critical capabilities provided by fifth-generation fighters. Details on Air Force and DoN fighter/attack aviation plans are outlined in the following paragraphs.

In the PB13 FYDP, the Department slowed the production ramp for all three F-35 variants to reduce concurrency between development and production. The Department will reduce the impact of these reductions through inventory management and selected cost-effective life-extension efforts for legacy aircraft.

Department of the Air Force. The Air Force will retain and maintain the capability and capacity to meet the demands of the new DoD strategic guidance. In the next ten years, the Air Force must continue to modernize the F-22 to address advances in threat systems and technologies to ensure the F-22 remains fully effective against the most challenging air-to-air and surface-to-air threats. The Air Force will defer 98 F-35A aircraft and procure 506 JSF from FY 2013 to FY 2022. In the meantime, the Air Force will invest in a “capability bridge” between legacy fighter platforms and the F-35 to mitigate program delays by investing in legacy fighter modernization and preferred munitions. For instance, the Air Force plans to conduct a service life extension program (SLEP) and capability upgrade for approximately 350 F-16 Block 40-52 aircraft beginning in FY16 to maintain the best fighter inventory allowed by fiscal constraints. Future research and development efforts beyond the FYDP will focus on improvements to fifth-generation aircraft and initial RDT&E on sixth-generation capabilities (i.e., F-X).

The Air Force made the difficult choice to divest 123 combat aircraft (F-16s, A-10s) over the Future Years Defense Program in accordance with the guiding principles of the new DoD

strategic guidance. These divestitures include 102 A-10 aircraft (20 from active duty, 61 from the Air National Guard, and 21 from the Air Force Reserves) from five squadrons. The A-10 retirement is based on war fighting analysis that assesses greater value in flexible multi-role fighters; however, the Air Force retains enough A-10s to meet the requirements of the new strategy. Similarly, the Air Force will retire 21 Air National Guard F-16 aircraft from one squadron.

Department of the Navy. The Navy will end procurement of the F/A-18E/F Super Hornet in FY 2014. The Super Hornet provides a significant increase in combat radius, endurance, and weapons payload over the legacy F/A-18A-D fleet. Despite the end of the procurement cycle, continuous modernization and sustainment of all models of the F/A-18 and AV-8B aircraft are critical to maintain relevant capability and capacity of strike fighters through 2030. Procurement of the EA-18G Growler ends in FY 2013, when the inventory objective is reached. Though it is an electronic warfare platform, the EA-18G has parts and manufacturing commonality with the F/A-18E/F, so it is included in the fighter category. This is an example of the multi-role airframe meeting multiple mission requirements and generating savings across the lifecycle of the platform due to commonality of parts, personnel, and support equipment.

In the far term, the Navy will need to replace its F/A-18E/F fleet starting in 2030. The Navy is conducting analyses to inform a decision on a follow-on system. Options include replacing the F/A-18E/F with F-35 aircraft or developing a new manned or unmanned platform, or a combination of both.

Due to adjustments in the F-35 program, it is necessary to take additional measures to ensure continued TACAIR capacity and capability for the operational fleet. The Department of the Navy is addressing the delays with several management and investment measures: adding to the service life of our legacy strike fighter aircraft (F/A-18A-D) through the SLEP of approximately 150 aircraft and accelerating the transition of seven legacy USN F/A-18C squadrons to F/A-18 E/F Super Hornets utilizing attrition aircraft.

Attack Helicopter

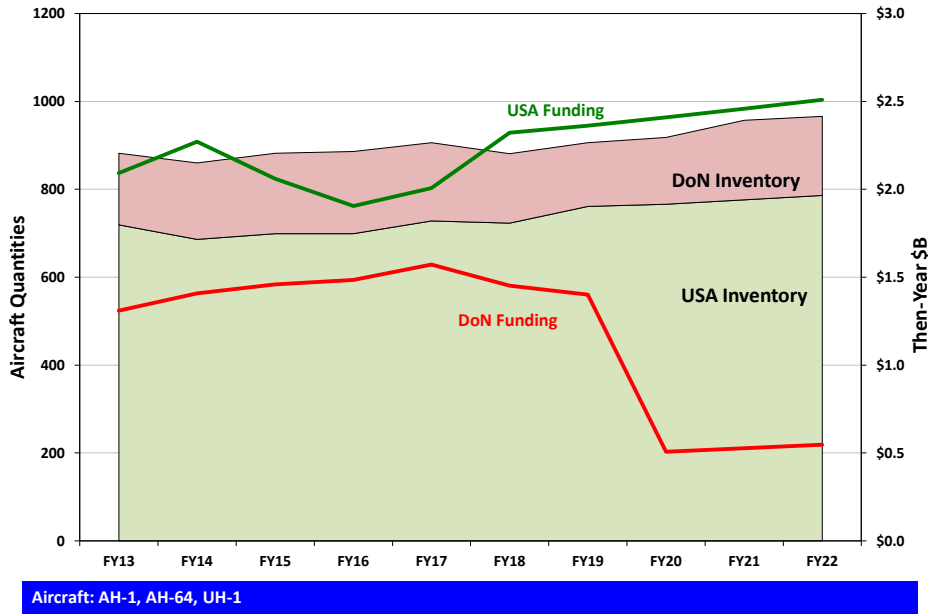
The following tables show the DoD Attack Helicopter aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Attack Helicopter	Army	DoN
	AH-64	AH-1, UH-1

2012 Attack Helicopter Inventory

Category	Inventory	
	Army	DoN
Total Aircraft	678	248
Mission	569	187
Training	92	26
RDT&E	17	11
Backup, Attrition Reserve, and Other Primary aircraft	0	26
Active Component	460	221
Reserve Component	216	27

Attack Helicopter Inventories & Funding
FY 2013-2022



The above chart depicts annual attack helicopter inventory and funding projections over FY2013 – 2022 broken out by military department. The funding lines highlight the end of AH-64 and AH-1 procurement as acquisition objectives are met. In aggregate, the attack helicopter inventory will increase by about ten percent over the FY2013 – 2022 period. Details on Army and DoN attack helicopter plans are outlined in the following paragraphs.

Department of the Army. A key part of Army Aviation capability resides in the Army’s attack helicopter fleet. The Army is fielding modernized variants of existing attack aircraft (AH-64D Block III) that will sustain the fleet by introducing new or remanufactured airframes as “zero time” aircraft, while increasing the aircraft’s overall capabilities. The Army is fielding evolutionary, but not revolutionary capability along with new airframes that are viable for 20

plus years of service. Going forward, the Army will procure to the Army Acquisition Objective for AH-64D Block III, while sustaining and making incremental improvements to the existing fleet. This will ensure that the Apache remains a viable combat helicopter beyond 2030.

Department of the Navy. The H-1 program includes both the Marine Corps attack and utility helicopters (the AH-1Z and UH-1Y respectively). Eighty-five percent of the major components are identical, enhancing deployability and maintainability while reducing training requirements and logistical footprint. In the near term, production will begin the AH-1Z "Build New" configuration, which will end the remanufacture process of the AH-1W and aid in the recovery from the significant attack helicopter shortfall.

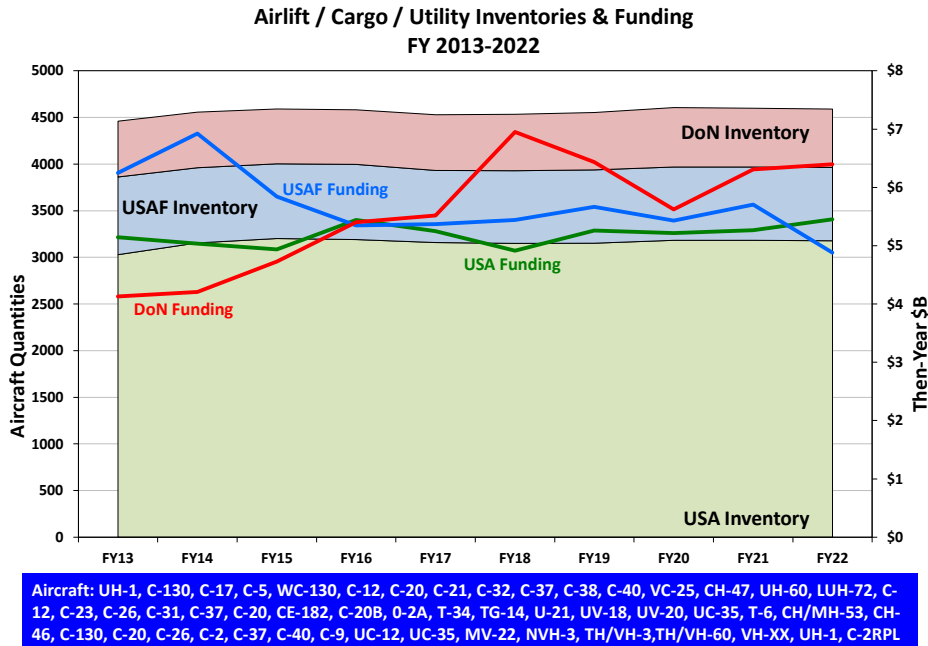
Airlift / Cargo / Utility

The following tables show DoD Airlift / Cargo / Utility aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments. This category includes Operational Support Airlift, Tilt Rotor assets, Helicopters, and fixed-wing airlift to include Intra-theater and Inter-theater airlift.

Airlift / Cargo / Utility	Army	Air Force	DoN
	CH-47, UH-60, LUH-72, C-12, C-23, C-26, C-31, C-37, C-20, CE-182, C-20B, O-2A, T-34, TG-14, U-21, UV-18, UV-20, UC-35, T-6	UH-1, C-130, C-17, C-5, WC-130, C-12, C-20, C-21, C-32, C-37, C-38, C-40, VC-25	CH/MH-53, CH-46, C-130, C-20, C-26, C-2, C-37, C-40, C-9, UC-12, UC-35, MV-22, VH-3, TH/VH-3, TH/VH-60, VH-XX, UH-1, C-2RPL

2012 Airlift / Cargo / Utility Inventory

Category	Inventory		
	Army	Air Force	DoN
Total Aircraft	2799	872	608
Mission	2491	641	432
Training	237	72	54
RDT&E	71	25	18
Backup, Attrition Reserve, and Other Primary aircraft	0	134	104
Active Component	1396	488	508
Reserve Component	1403	384	100



The above chart depicts annual Airlift / Cargo / Utility aviation inventory and funding projections over FY2013 – 2022 broken out by military department. In aggregate, the Airlift / Cargo / Utility inventory will increase about three percent over the FY2013 – 2022 period. Details on Army, Air Force, and DoN Airlift / Cargo / Utility aviation plans are outlined in the following paragraphs.

Department of the Army. The bulk of Army Aviation assets reside in the Army’s utility and cargo aviation fleets. The Army is fielding modernized variants of existing utility and cargo aircraft (UH-60M and CH-47F) that will sustain the fleet by introducing new or remanufactured airframes while increasing the aircraft’s overall capabilities. These new and remanufactured aircraft should be viable for 20 plus years of service. The Army will modernize its utility and cargo helicopter fleets by divesting selected legacy aircraft (UH-1, CH-47D, and UH-60A variants), which have reached the end of their useable lives. The Army will deliver a portion of the legacy airframes to industry for remanufacture rather than divesting them, to reduce the cost of new airframes. While the Army is upgrading its four main fleets of tactical rotary wing aircraft, the Army is simultaneously fielding the last of the Light Utility Helicopter or LUH-72, which is limited to conducting supporting operations – mainly aerial medical evacuation and light utility missions – in permissive environments (such as Homeland Defense). Additionally, the Army is fielding a limited number of fixed wing support aircraft and is developing plans to replace the C-12 with a similar type aircraft in 2018 and later as the C-12 is nearing the end of its useable life.

The Army’s current modernization efforts are largely focused on sustaining and improving the current generation of aircraft through 2022 and beyond. However, by that time the first of these modernized rotary wing aircraft will have begun to reach the end of their useful lives. The lifespan of these aircraft may be further accelerated by accumulated heavy use over the past 10

years in combat and potential continuation of the ongoing overseas contingency operations. As a result, the Army foresees the following:

- UH/HH-60: The final UH/HH-60 fleet will consist of 1375 UH/HH-60Ms and 760 UH-60Ls. The UH/HH-60Ms will be bought out by 2027; this will cascade all UH-60A models out of the service. By 2026 the Army should be pure UH-60M and L models. To extend the life of the L model it will undergo an “L to L” RECAP starting in FY 16 which will continue for the next 20 years (at 38 per year). The M model will start reaching its 20 year life at 2027 and will then undergo a RECAP to extend its life beyond FY40.

- CH-47: CH-47F procurement will be complete after FY18. Consequently, the Army will evaluate a CH-47F depot level recapitalization program, for FY23 and beyond, to extend the CH-47F’s service life beyond FY40.

- Utility/OSA Fixed Wing: Utility Fixed Wing consists of all Army Operational Support Airlift aircraft as well as the Army’s training fleet, research and development fleet and special mission aircraft. This fleet consists of older aircraft that will need replacement by 2020-2030. The special mission aircraft and R&D aircraft will be validated and replaced on a one for one basis FY22 and beyond.

- LUH: This is the newest fleet and will be bought out in FY15. This capability will be sustained through FY35. A replacement capability may be procured should requirements and sustainability of this system require an upgraded capability.

Department of the Air Force. The Air Force will retain a fleet of 318 C-130 aircraft, ensuring the intra-theater airlift fleet is sized to meet the revised strategic guidance. The Air Force continues to focus on balancing aircraft recapitalization with key modernization and sustainment across the airlift fleet. In the near term, the Air Force will continue procurement of the versatile C-130J Hercules, which is capable of performing intra-theater lift missions in austere locations, as it is doing today in Afghanistan and Iraq. Additionally, to ensure compatibility with worldwide Communication, Navigation, Surveillance (CNS)/Air Traffic Management (ATM) standards, the Air Force will make essential updates to the C-130 fleet to ensure it is in compliance with 2020 and beyond international airspace mandates. To allow retaining critical capabilities in light of fiscal constraints, the Air Force will retire 65 of its oldest C-130H aircraft across the FYDP, averting significant aircraft sustainment costs. The changed priorities of the revised strategic guidance also prompted the Air Force to divest the C-27J fleet, but the Air Force’s commitment to support time-sensitive, mission-critical direct airlift support to the Army is unaltered. The Air Force will continue to provide time-sensitive, mission-critical direct support to the U.S. Army with other tactical aircraft. The Air Force will divest the 38 aircraft C-27J program. The 21 procured aircraft will be retired and 17 aircraft will not be ordered. The C-130 fleet is fully capable to meet Direct Support and Homeland Defense requirements and the projected life-cycle cost of the C-27J exceeds that of the more capable C-130.

Air Force inter-theater airlift, whether transporting humanitarian-relief supplies or wartime materiel, is unrivaled in its ability to move massive amounts of cargo to distant locations around the world. The Air Force retains a fleet of 275 relatively new or recently modified strategic

airlifters, ensuring the inter-theater airlift fleet is sized to meet the requirements of combatant commander's in-line with the demands of the DoD strategic guidance. In combination with commercial aircraft that can be made available for airlift missions and sealift forces, the Air Force's strategic airlift aircraft—the C-17 Globemaster III and C-5 Galaxy—form the foundation of the nation's strategic mobility and global sustainment capabilities. With a focus on retaining critical capabilities and maintaining the capacity necessary to meet requirements, force structure reductions include retiring 27 C-5As allowing the Air Force to avert high sustainment costs. To maintain their operational capability and transport capacity, the 52 remaining C-5s are receiving avionics and engine upgrades, further extending their service lives and creating a far more capable C-5M Super Galaxy.

The C-5 and C-17 fleets will continue to form the core of the military's strategic airlift capabilities in the far term. Continued investments in upgrades for these fleets remain the most cost-effective means of sustaining these capabilities through FY 2041. Additionally, the Department will examine future strategic airlifter options to recapitalize the C-5 as it approaches the end of its service life.

With the deferment of the Common Vertical Lift Support Platform (CVLSP) program, the Air Force will continue to fly the UH-1N. The Air Force operates 62 UH-1N helicopters at six major commands. The majority of the Air Force UH-1N fleet is focused on critical national security missions: nuclear asset security for Air Force Global Strike Command, and National Capital Region missions conducted by the Air Force District of Washington. Anticipating that the Air Force will fly the UH-1N for the foreseeable future, the Department must selectively modernize the UH-1N to minimize existing capability gaps and avoid increased sustainment costs brought on by obsolescence.

Finally, Operational Support Airlift/Executive Airlift (OSA/EA) deliver highly responsive and reliable executive airlift to senior US civil and military officials and foreign dignitaries as well as high-priority cargo with time, place or mission sensitive requirements. Special communications equipment allows these passengers to conduct highly sensitive business en route, even globally, without compromising their efficiency or effectiveness. To maintain this critical capability into the future, the Air Force plans to begin recapitalizing the VC-25 fleet, with the first aircraft being delivered to begin modification in 2019.

Department of the Navy. Over the next ten years, the Navy will procure C-130J and C-40 lift aircraft to meet Navy unique intra-theater logistics support. These aircraft respond to immediate demands for moving essential fleet personnel and cargo to mobile sea-based forces worldwide.

The MV-22B Osprey provides the MAGTF Commander medium lift assault support. The tilt-rotor capability provides an advantage to warfighters, allowing current missions to be executed more effectively, and new missions to be accomplished that were previously unachievable using legacy platforms.

In the far term, the C-2A fleet, which provides long-range logistical support to carrier strike groups, will reach the end of its service life and will have to be replaced. Ongoing studies will determine the best option to recapitalize capabilities provided by the C-2 and MH-53E in a

program currently referred to as Airborne Resupply/Logistics for the Sea Base. C-40A aircraft, being procured in the near term, will begin reaching the end of their service lives prior to 2041 and will need to be replaced.

The CH-53K provides the MAGTF Commander heavy lift assault support. It will achieve initial operating capability in FY19 and begin incrementally replacing the aging CH-53Es. Maintainability and reliability enhancements of the CH-53K will decrease recurring operating costs, and greatly improve aircraft efficiency and operational effectiveness.

The MH-53E aircraft supporting Mine Countermeasures missions will retire in the late 2020s to early 2030s as the mission migrates to MH-60S and the MH-60 replacement aircraft. The lift capabilities will be incorporated into the overall logistics system identified by the Airborne Resupply/Logistics for the Sea Base study.

V-XX represents the replacement aircraft under development for the 35-year old VH-3D and the 25-year old VH-60N helicopters, currently providing transportation for the President of the United States, foreign heads of states, and other dignitaries as directed by the White House Military Office. The Replacement Presidential Helicopter will provide a hardened, mobile command and control transportation capability and a system of integrated systems necessary to meet current and future presidential transport mission requirements. V-XX will begin operating in 2023 in response to the retirement of the VH-3D aircraft.

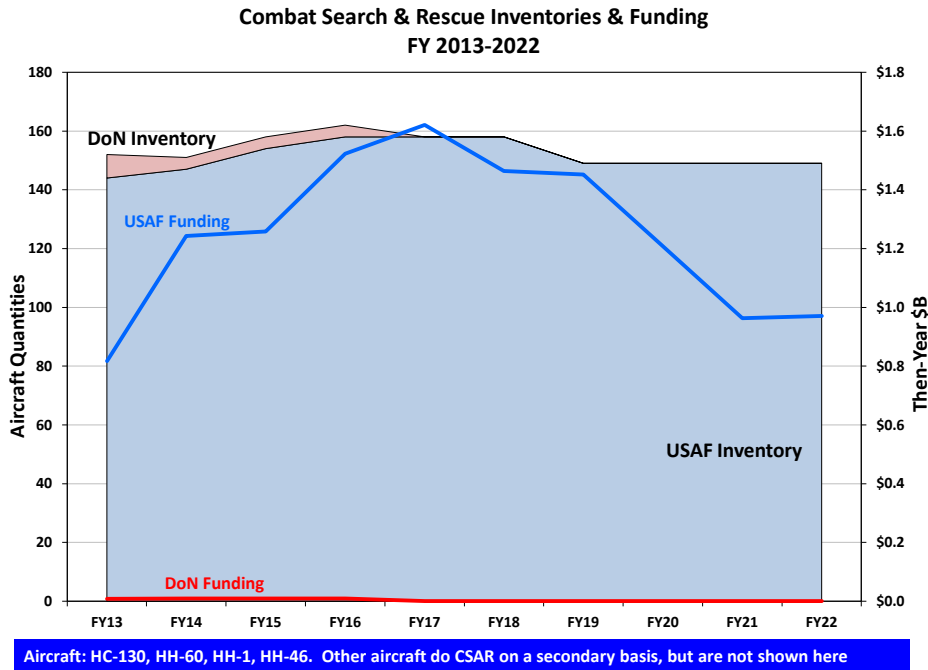
Combat Search and Rescue

The following tables show the DoD Combat Search and Rescue aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Combat Search and Rescue	Air Force	DoN
	HC-130, HH-60	HH-1, HH-46

2012 Combat Search and Rescue Inventory

Category	Inventory	
	Air Force	DoN
Total Aircraft	136	8
Mission	98	6
Training	19	0
RDT&E	6	0
Backup, Attrition Reserve, and Other Primary aircraft	13	2
Active Component	90	8
Reserve Component	46	0



The above chart depicts annual dedicated combat search and rescue aviation inventory and funding projections over FY2013 – 2022 broken out by military department; almost all forces and expenditures reside in the Air Force. In aggregate, the combat search and rescue aviation inventory will decline about two percent over the FY2013 – 2022 period. Details on Air Force and DoN combat search and rescue aviation plans are outlined in the following paragraphs.

Department of the Air Force. For FY13, the Air Force continued its progress towards recapitalizing legacy HC-130s with 37 HC-130Js. In April 2011, the Air Force made an acquisition decision on recapitalizing the legacy HH-60G and subsequently introduced a “full and open competition” approach that will replace the personnel recovery rotary wing fleet. Research and development funding for these efforts will peak in FY15.

Department of the Navy. The Navy inventory includes the USMC HH-1N and HH-46E. As these assets reach the end of their service life, the search and rescue mission will be fulfilled by DoN multi-mission aircraft, including USMC UH-1Y and MV-22B and USN MH-60S.

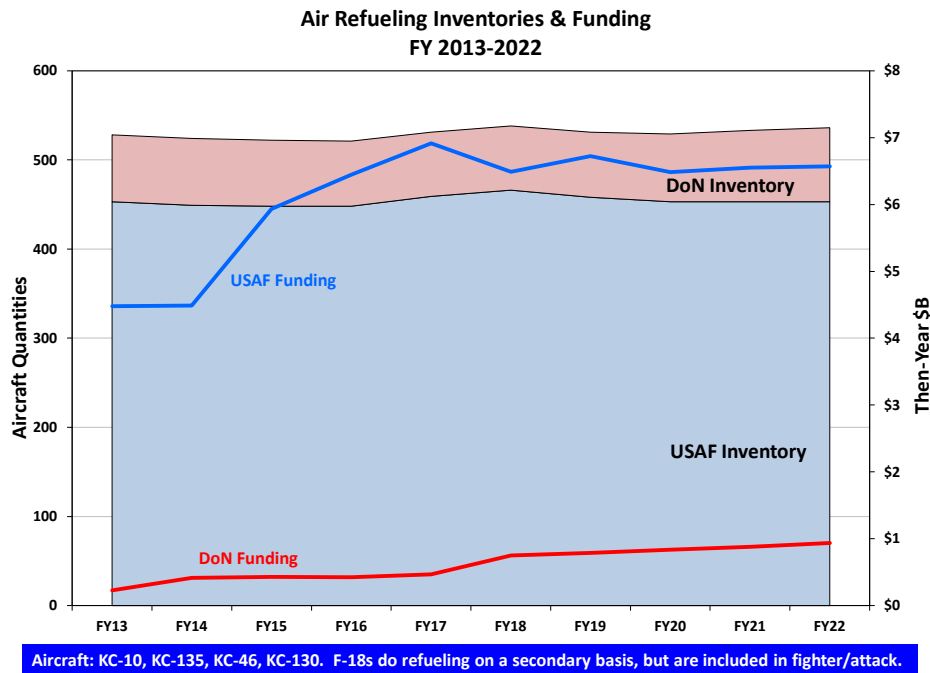
Air Refueling

The following tables show the DoD Air Refueling aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Air Refueling	Air Force	DoN
	KC-10, KC-135, KC-46	KC-130

2012 Air Refueling Aviation Inventory

Category	Inventory	
	Air Force	DoN
Total Aircraft	473	78
Mission	416	67
Training	22	0
RDT&E	2	5
Backup, Attrition Reserve, and Other Primary aircraft	33	6
Active Component	226	51
Reserve Component	247	27



The above chart depicts air refueling aviation inventory and funding projections over FY2013 – 2022 broken out by military department. In aggregate, the Air Refueling inventory will increase by one percent over the FY2013 – 2022 period. Details on Air Force and DoN Air Refueling aviation plans are outlined in the following paragraphs.

Department of the Air Force. As the DoD places greater emphasis on operations in other theaters like the Asia-Pacific, Air Force refueling aircraft continue their vital, daily role of extending the range and persistence of almost all other aircraft of the Joint force. The Air Force remains committed to fully funding the acquisition of the new KC-46 tanker, while also resourcing critical modernization programs for the legacy KC-10 and KC-135 fleets, assuring crucial air refueling capacity and capability for decades to come. The aerial refueling fleet is

sized to meet the Combatant Commander requirements and revised demands of the strategic guidance. The Air Force will retire 20 KC-135 aircraft over the FYDP.

As the Air Force’s fleet of tanker aircraft ages, new tankers will be needed to provide in-flight refueling support. The Air Force has begun recapitalizing the tanker fleet with fully funded plans to develop and procure 83 KC-46A tankers by 2022. The KC-46A fleet will reach its planned size of 179 aircraft in 2029; later tanker procurement will be the result of a future contract award. The KC-46A will be able to refuel aircraft in flight and can be air refueled by other aircraft to allow continuous overhead fuel management across the battlespace. Additionally, the capability to transfer fuel to either receptacle or probe-equipped receivers without reconfiguration will enhance the capability and flexibility of the tanker fleet.

Department of the Navy. The Marine Corps will continue procuring the KC-130J in the near term, expanding its inventory of this aircraft, which has proven its combat effectiveness and reliability in both Iraq and Afghanistan. Capable of employment in intratheater lift, assault support, persistent ISR, and aerial refueling missions, the KC-130J will replace aging KC-130T models. The Navy will incorporate carrier based organic tanking capability requirements into future aircraft studies, and will consider multiple options for future carrier-based tanker assets.

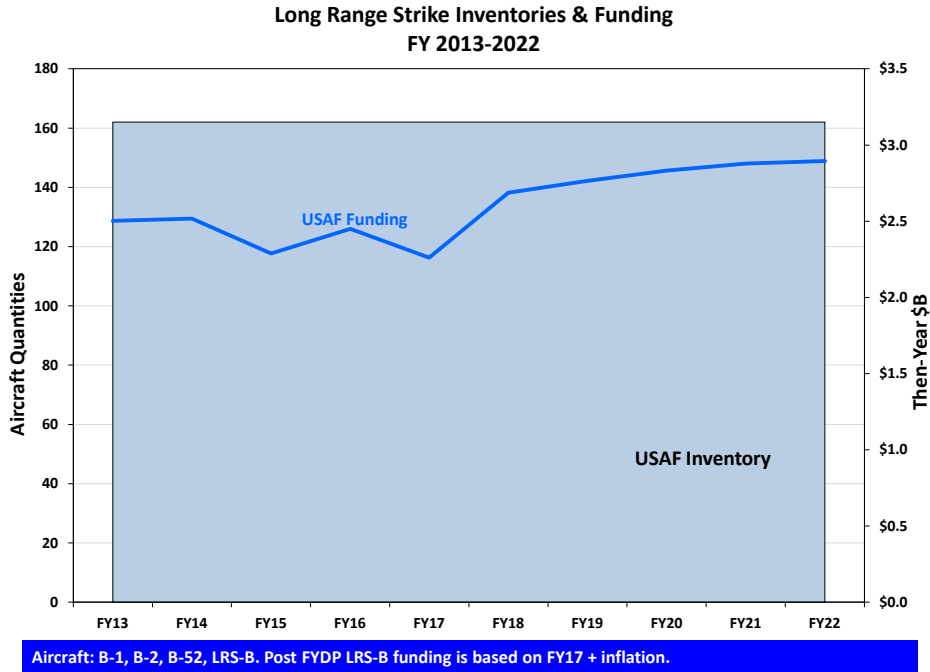
Long-Range Strike

The following tables show the DoD Long-Range Strike aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Long Range Strike	Air Force
	B-1, B-2, B-52, LRS-B

2012 Long Range Strike Aviation Inventory

Category	Inventory
	Air Force
Total Aircraft	162
Mission	96
Training	32
RDT&E	7
Backup, Attrition Reserve, and Other Primary aircraft	27
Active Component	144
Reserve Component	18



The above chart depicts annual long-range strike aircraft inventory and funding projections over FY2013 – 2022. The inventory level in the chart contains no allowance for possible attrition. Details on Air Force long-range strike plans are outlined in the following paragraphs.

Department of the Air Force. The FY12 PB initiated development of the Long-Range Strike Bomber (LRS-B), a key component of the LRS Family of Systems. The Air Force plans to continue aggressive funding for the LRS-B. The current goal is to achieve an initial capability in the mid 2020s, and to hold down the unit cost to ensure sufficient production (80 to 100 aircraft) and a sustainable bomber inventory over the long term. Meanwhile, the Department will invest in upgrades to the B-2 bomber to enhance its effectiveness and survivability as well as modernize the B-52 fleet with new visual displays and an increased weapons storage capacity. The Air Force also continues to modernize the B-1 and address sustainability issues to ensure the overall health and continued viability of the B-1 fleet.

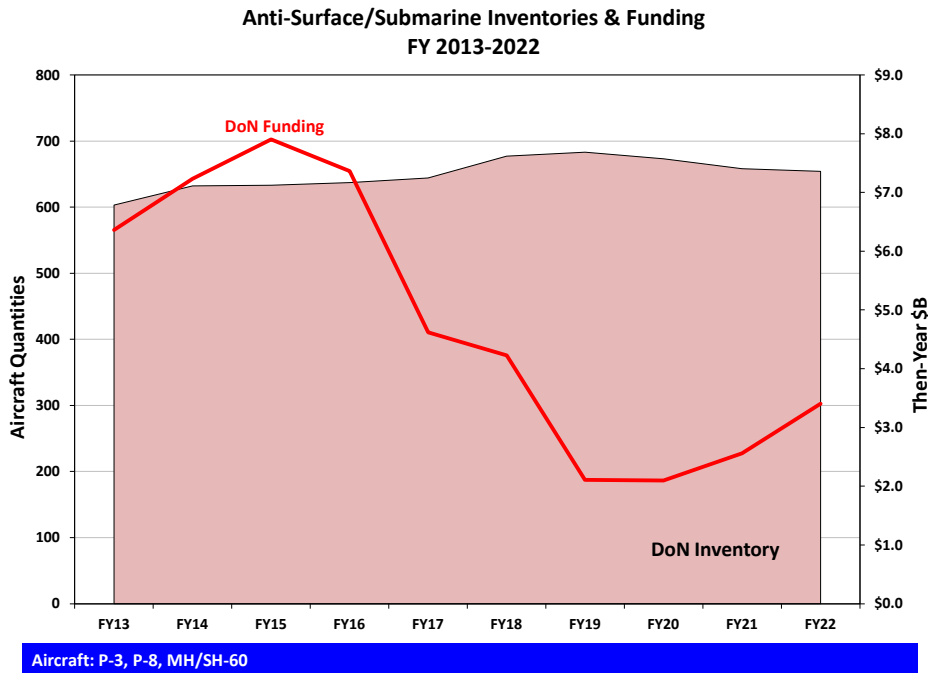
Anti-Surface/Submarine Warfare

The following tables show the DoD Anti-Surface/Submarine Warfare aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Anti-Surface/Submarine Warfare	DoN
	P-3, P-8, MH/SH-60

2012 Anti-Surface/Submarine Warfare Aviation Inventory

Category	Inventory
	DoN
Total Aircraft	606
Mission	362
Training	104
RDT&E	30
Backup, Attrition Reserve, and Other Primary aircraft	110
Active Component	587
Reserve Component	19



The above chart depicts annual Anti-Surface/Submarine Warfare inventory and funding projections over FY2013 – 2022. In aggregate, the Anti-Surface/Submarine Warfare inventory will increase by about 8% over the FY2013 – 2022 period. Details on DoN Anti-Surface/Submarine Warfare aviation plans are outlined in the following paragraphs.

Department of the Navy. The MH-60R and MH-60S multi-mission combat helicopters are integral to carrier air wings and individual surface combatants to meet requirements for defensive anti-surface and anti-submarine warfare. Both helicopters will be sustained. The P-8A Poseidon will replace the P-3C maritime patrol aircraft. The P-8A will provide persistent anti-submarine (ASW) and anti-surface warfare (ASUW) capabilities as well as ISR to keep pace

with emerging threats. The P-8A features a sensor and communications suite built within an open architecture to facilitate the insertion of state-of-the-art ASW sensors, net-ready technologies, and the latest in joint weapons throughout its service life. P-8A will tailor integration of its on-board mission suite with unmanned aerial vehicles and satellite based systems and sensors to assure maritime domain awareness. Increment 2 provides enhanced broad area ASW and weapons capabilities. Increment 3 will deliver networked enabled ASUW weapons; full compliance with the net-ready key performance parameters; architecture upgrades; ASW sensor and targeting enhancements; and improved communications capability. The drop in Anti-Surface/Submarine Warfare funding reflects the nearly simultaneous end in procurement funding for the MH-60 and P-8.

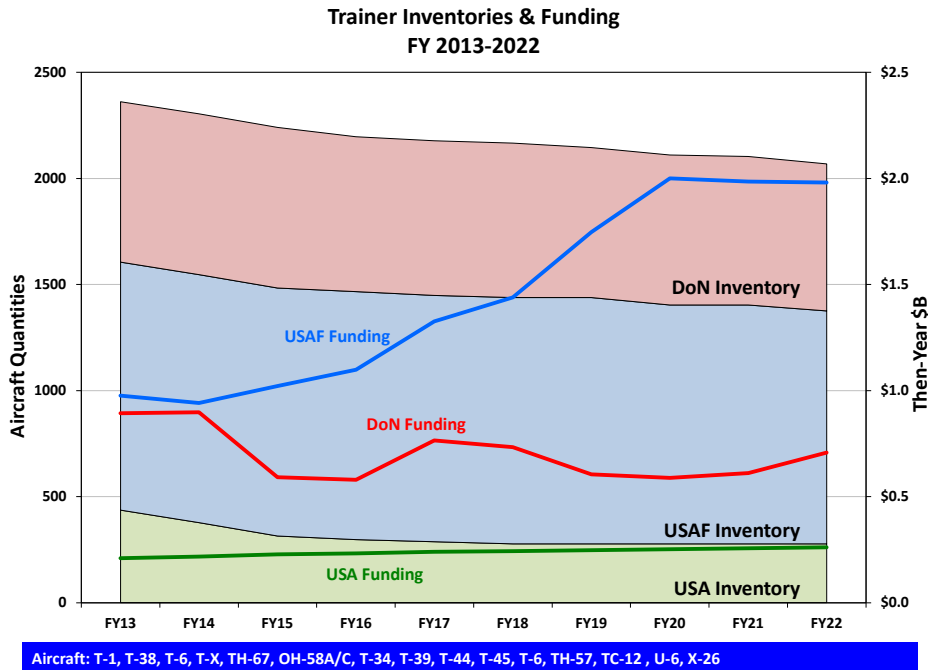
Trainers

The following tables show the DoD Trainer aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Trainers	Army	Air Force	DoN
	TH-67, OH-58A/C	T-1, T-38, T-6, T-X	T-34, T-39, T-44, T-45, T-6, TH-57, TC-12, U-6, X-26

2012 Trainers Aviation Inventory

Category	Inventory		
	Army	Air Force	DoN
Total Aircraft	377	1155	850
Mission	70	0	0
Training	302	969	730
RDT&E	5	23	15
Backup, Attrition Reserve, and Other Primary aircraft	0	163	105
Active Component	324	1155	850
Reserve Component	53	0	0



The above chart depicts annual trainer aircraft inventory and funding projections over FY2013 – 2022 broken out by military departments. In aggregate, the trainer inventory will decrease by 12% over the FY2013 – 2022 period. Details on Army, Air Force and DoN training aircraft investment plans are outlined in the following paragraphs.

Department of the Army. A new training helicopter requirement has not been defined by Army Aviation. The current capability (TH-67 and OH-58A/C) will be sustained until a requirement is defined and funding is available to procure a new capability.

Department of the Air Force. Currently, the T-6 forms the backbone of the AF primary flight training program and will remain so through the 2040 timeframe. Additionally, the T-1A fleet provides flight training for various advanced pipelines. The T-38C is a proven, but aging advanced trainer aircraft originally developed as a trainer for 2nd generation fighters. The USAF T-38C fleet faces increasing sustainment costs and is limited in its ability to fulfill training requirements for 5th generation fighters such as the F-22 and F-35. As such, the Air Force is defining a replacement program, the T-X, envisioned to begin production around FY18 with a planned IOC in FY20.

Department of the Navy. The Navy is transitioning to the T-6 Joint Primary Trainer as the T-34C retires. The T-45C Goshawk will become the single advanced strike trainer for tailhook pilots and naval flight officers as the T-39G/N Sabreliner is retired. The T-45C replacement will need to be identified in the 2020s to meet the retirement of the T-45C. The T-44A/C Pegasus and TC-12B Huron serve as the multiengine trainer for the Department. The T-44 replacement will need to be identified in order to begin service in the mid to late 2020s. The TH-57B/C will be upgraded to the single cockpit configuration TH-57D and will be used as both a rotary-wing and tilt-rotor training aircraft.

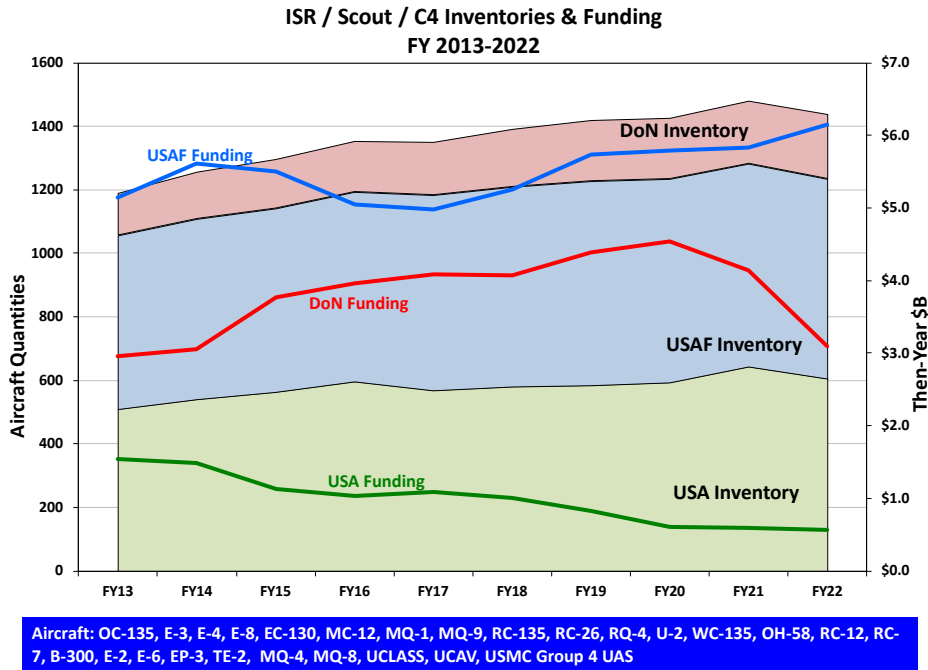
ISR / Scout / C4

The following tables list DoD ISR / Scout / C4 aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

ISR / Scout / C4	Army	Air Force	DoN
	OH-58, RC-12, RC-7, B-300, C-12, MQ-1	OC-135, E-3, E-4, E-8, EC-130, MC-12, MQ-1, MQ-9, RC-135, RC-26, RQ-4, U-2, WC-135	E-2, E-6, EP-3, TE-2, MQ-4, MQ-8, RQ-4, UCLASS, MQ-XX, UCAV

2012 ISR / Scout / C4 Aviation Inventory

Category	Inventory		
	Army	Air Force	DoN
Total Aircraft	469	436	118
Mission	398	296	59
Training	52	63	9
RDT&E	19	34	22
Backup, Attrition Reserve, and Other Primary aircraft	0	43	28
Active Component	442	350	112
Reserve Component	27	86	6



The above chart depicts annual ISR / Scout / C4 aircraft inventory and funding projections over FY2013 – 2022 broken out by military department (small UAS, less than Group 4, are not included in the data). In aggregate, the ISR / Scout / C4 inventory will increase by 31% over the FY2013 – 2022 period. Details on the Army, Air Force, and DoN ISR / Scout / C4 aviation plans are outlined in the following paragraphs.

Department of the Army. Other than the Army’s attack, utility, and cargo aviation fleets, the remaining aviation assets are in the reconnaissance aviation fleet. The Army is conducting analysis to determine whether to extend the life of the OH-58D through a service life extension or field a new armed reconnaissance helicopter, the Armed Aerial Scout (AAS). Additionally, the Army has a UAS fleet that is comprised of small (Raven), medium (Shadow), and large (Gray Eagle) aircraft. All are existing programs of record and are under active acquisition programs to meet fleet size objectives over the next 5 years. The first unit slated to receive Gray Eagle was fully fielded and deployed as a quick reaction capability company in FY12, however, pre-production Gray Eagle variants have been flying in combat theaters as quick reaction capability units since 2006, and we have already begun to garner lessons learned for the program of record. The Gray Eagle UAS will be fielded to Combat Aviation Brigades and provide direct support capabilities to deployed divisions and subordinate Brigade Combat Teams. Two Gray Eagle companies will also be assigned to the Army Special Operations Aviation Regiment. Long-term, the following changes are planned for the Army’s reconnaissance aviation fleet:

- Armed Aerial Scouts: Sustain the AAS capability by performing life extension on the OH-58D or procuring a new armed reconnaissance helicopter.
- MI Fixed Wing: The MI Fixed Wing fleet consists of RC-12 fleet, Armed Reconnaissance Low (RC-7/EO-5) and the TF ODIN fleet. Each of these fleets will

require a replacement aircraft in the 2020 timeframe as they reach their service life end state. The Army is beginning development of a strategy to address these airframes.

- MQ-1C (Gray Eagle): continue to sustain and make incremental improvements to the airframe, payloads, ground control stations and other enablers to keep the Gray Eagle program of record relevant.

Department of the Air Force. The Air Force is maintaining the right mix of capability and capacity to ensure we meet joint requirements for high altitude ISR. In 2011, the Joint Requirements Oversight Council (JROC) reduced the requirement for the amount of high-altitude ISR needed. The combination of reduced requirement and reduced budget led the Air Force to divest the RQ-4 Block 30 (18 aircraft) and retain the U-2. The U-2 has sensor capabilities to meet the JROC requirements and will continue to provide effective, affordable, and sustained high altitude ISR support to combatant commanders and joint warfighters.

The MC-12W was designed as a quick response capability (QRC) to satisfy ISR requirements in Afghanistan and Iraq. The Air Force will transfer the MC-12W from active duty to the Air National Guard in FY14 in anticipation of decreased deployment tempo and in recognition of its ability for a range of missions. The Air Force will retain the capability to provide two deployed MC-12W CAPs.

The transfer of the MC-12W mission to the Air National Guard allows the Air Force to divest the entire RC-26 fleet (11 total aircraft) in FY15, reducing the single aircraft from each of 11 different Air National Guard locations. The more robust and capable MC-12W will replace the RC-26B and provide enhanced sustainability in a more efficient basing configuration.

The Air Force is committed to continue developing and managing its Unmanned Aircraft Systems (UAS) crews and fleet to provide the right mix of capability to meet COCOM demands now and into the future. In the near term, the Air Force will procure MQ-9 Reapers at a rate of 24 aircraft per year, compared to a previously planned 48, fund the MQ-9 program to Milestone C, and will begin funding transition from contractor logistics support to organic depot beginning in FY13. Analyses are ongoing to determine the capabilities and quantities needed for a successor system. In addition, the Air Force chose to freeze the MQ-1 in its current configuration, completing only those modifications currently underway.

The Air Force is modernizing its legacy ISR/C4 fleet and is assessing alternatives with regard to procuring new platforms in the future. Far-term efforts will include the potential recapitalization of the Air Force's ISR and C4 fleets. Near term, this year's aviation plan reflects some EC-130 Compass Call recapitalization investment outside the FYDP. Additionally, the Air Force will retire one damaged E-8C Joint Surveillance Target Attack Radar System (JSTARS) aircraft because it is economically impractical to repair.

Department of the Navy. The Navy is investing in the development of a carrier-based unmanned aircraft. Leveraging the Unmanned Combat Aircraft System – Demonstration (UCAS-D), the Navy will incorporate lessons learned into ongoing studies. The Navy is conducting analysis of alternatives for the Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS)

system to determine key capabilities for this future, sea-based unmanned aerial system with an initial capability by 2020. Additionally, the MQ-8 vertical take-off and landing unmanned aerial vehicle (VTUAV) was designed for LCS class ships and is able to operate from all air-capable ships equipped with the Tactical Control System. The VTUAV will provide sea-based ISR support to maritime and Special Operations Forces missions to 2035.

The Marine Corps plans to replace its existing Group 3 UAS, RQ-7B Shadow systems, by fielding a multirole, Group 4 UAS in the FY2018 timeframe. This expeditionary platform will provide Marine Air Ground Task Forces with enhanced surveillance, electronic warfare (EW) and persistent strike capabilities.

In the long term, the Department of the Navy will capitalize on UCAS-Demo, initial UCLASS capability, and our analysis of future, sea-based unmanned systems in an effort to identify the appropriate mix of manned and unmanned assets in our future air-wing structure.

Leveraging Global Hawk technology, the Navy will procure the BAMS aircraft to enhance situational awareness and shorten the time it takes to prosecute targets. BAMS will complement other platforms by providing very long dwell ISR capabilities for missions in littoral and maritime areas.

The E-2D Advanced Hawkeye will replace the E-2C. Incorporating advanced radar and other enhanced systems, the E-2D will improve open-ocean surveillance capability and provide littoral surveillance and integrated air and missile defense capabilities against emerging air and cruise missile threats.

The E-6B Mercury – derived from the Boeing 707 aircraft – provides command and control in support of a flexible nuclear deterrent posture. Programmed mission system upgrades ensure the fleet remains on the cutting edge of full-spectrum communications supporting Nuclear Command, Control and Communications. The E-6B aircraft are expected to reach their end of life of 45,000 hours around 2040. A replacement aircraft will be identified to meet anticipated requirements within the 30 years encompassed by this report.

The Navy is developing a System of Systems construct to recapitalize the Airborne, Intelligence Surveillance, Reconnaissance, and Targeting capabilities currently resident in the EP-3 and Special Projects Aircraft by the end of the decade. The focus is on developing common, scalable, sensor payloads that can be delivered by a wide range of manned and unmanned programs including Broad Area Maritime Surveillance (BAMS), Vertical Take-off Unmanned Aerial Vehicle (VTUAV), Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS), E-2C/D, H-60, and P-8.

Over the long-term, the Navy will examine alternatives for recapitalizing the E-2D, P-8A, E-6B and MQ-4C fleets in the mid 2030's.

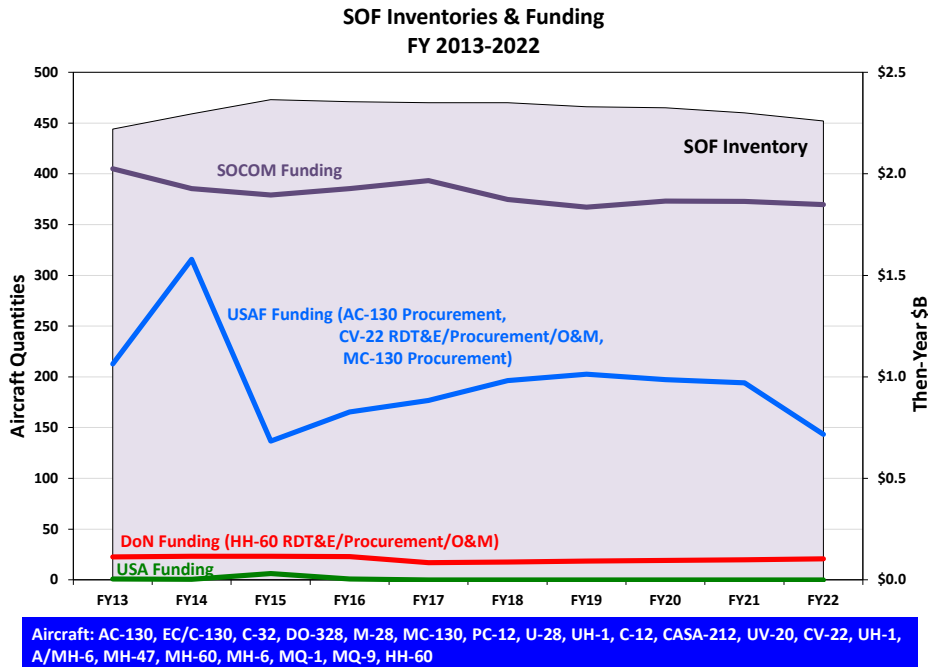
Special Operations Forces

The following tables list DoD Special Operations Forces aviation assets and the 2012 current inventory by category for all active aircraft consistently tracked by the Departments.

Special Operations Forces	SOCOM
	AC-130, EC/C-130, C-32, DO-328, M-28, MC-130, PC-12, U-28, UH-1, C-12, CASA-212, UV-20, CV-22, UH-1, A/MH-6, MH-47, MH-60, MH-6, MQ-1, MQ-9

2012 Special Operations Forces Aviation Inventory

Category	Inventory
	SOCOM
Total Aircraft	476
Mission	338
Training	70
RDT&E	3
Backup, Attrition Reserve, and Other Primary aircraft	65
Active Component	460
Reserve Component	16



The above chart depicts annual Special Operations Forces Aviation inventory and funding projections over FY2013 – 2022, to include Army, Air Force, and DoN contributions. In aggregate, the Special Operations Forces aviation inventory will remain flat over the FY2013 – 2022 period. Specific details on Special Operations Forces Aviation are outlined in the following paragraphs.

Special Operations Forces Aviation. In the FY13 PB, the Air Force is replacing the legacy AC-130 gunship fleet 1 for 1 with AC-130Js. The Air Force also added funding to buy four additional MC-130J aircraft and begin the recapitalization of the MC-130W fleet.

The Air Force’s SOF vertical lift capability remains on track with the 29th CV-22 delivering in FY12, and the fleet growing to 37 by FY13. The final CV-22 will be procured in FY14 and delivered in FY16, completing the planned purchase of 50 aircraft.

Concerning the DoN, the HH-60H is currently serving as the Navy’s primary special operations support helicopter. Replacement of the HH-60H will occur in the 2020s initially leveraging the existing MH-60S until either the MH-XX or an option from the Joint Future Vertical Lift efforts becomes viable.

With respect to the Army, the Army’s Special Operations Aviation Command (ARSOAC) utility and cargo helicopter fleets are all undergoing modernization efforts. However, the ARSOAC armed reconnaissance helicopter, the AH-6, is unique to Special Operations and is not undergoing active acquisition or modernization.

Budget Certification

The Department's FY 2013 budget request and the associated FY 2013-2017 FYDP provide the funding needed to implement the aviation investment plan through FY 2017 for all programs of record.

Sufficiency of Forces Assessment

The FY 2013-2042 aviation plan meets the national military strategy of the United States.

Appendix I – Inactive Aircraft

Inactive aircraft are aircraft in storage, reclamation, bailment (i.e., government furnished equipment (GFE)), loan or lease outside the defense establishment, or otherwise not available for military service (e.g., foreign military sales). The Air Force has inactive aircraft in three categories: GFE/bailment, loan, and storage. The DoN has inactive aircraft in four categories: GFE/bailment, loan, reclamation, and storage. The Army does not subdivide this inventory.

Government Furnished Equipment (GFE)-Aircraft furnished to and under the control of a non-government organization pursuant to the requirements of a government contract (i.e., bailment).

Loan-Military aircraft provided to other US government organizations on a temporary basis.

Reclamation-Aircraft removed from operational service due to damage, depreciation, administrative decision, or completion of projected service life.

Storage-Aircraft removed from the active inventory and held in a preserved condition.

Maintenance Training (MT)-Aircraft employed for ground training which do not require airborne operations.

Air Force

Materiel	GFE	Loan	Storage
A-10			25
B-1			5
BC-5			22
C-12			3
C-130			60
C-20			1
C-21			23
C-9			6
CH-53			1
CT-39			21
E-8			1
EC-130			7
EC-135			19
EC-18			1
EF-111			33
F-111			168
F-15			108
F-15E	1		
F-16	1		528
F-4			133
FB-111			4
KC-135			158
MH-53			29
NC-131	1		
NF-16	2		
NF-4			3
NT-39			1
QF-4	2		
RF-4			103
T-34		8	
T-38	10	12	5
T-39			4
T-41		77	
T-42		9	
T-6			1
U-3		2	
WB-57		1	4
Totals	17	109	1477

Navy/USMC

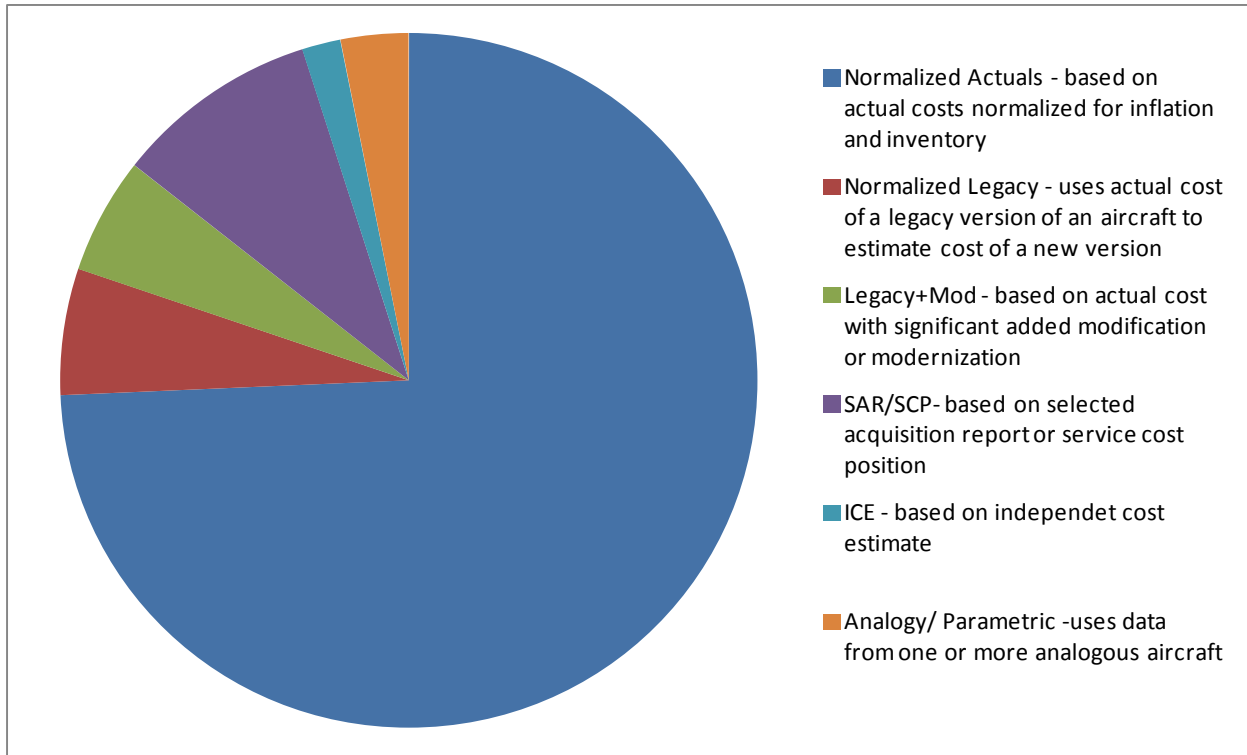
Materiel	GFE	Loan	Reclamation	Storage
AH-1			1	
AV-8				4
EA-6			1	
F-5			13	
FA-18			1	21
KC-130				1
MH-60	1			
MV-22		1		4
NC-12			1	
NC-9	1			
O-2	2			
P-8		3		
RQ-4				3
S-3				2
SH-60			9	
T-34		5	3	4
UC-12	1		4	
UH-1			1	
UV-18	1			
X-49		1		
Totals	6	10	34	39

USA

Materiel	MT
CH-47	10
UH-60	30
Totals	40

Appendix II – Sources of Cost/Funding Information

The Budget Certification above is based on a number of cost sources identified in the chart below. Most of the aircraft types dealt with in this report have entered service, and many types are out of production. For these types of aircraft, the funding data is based on actual experience with procuring and operating the aircraft. For types of aircraft that are in development or low-rate initial production, the funding information comes from a CAPE Independent Cost Estimate (ICE) or the Service Cost Position (SCP). For programs that do not yet have an ICE or SCP, the funding information is based on historical analogy with similar programs (e.g., future fighters with F-22 and F-35, future bombers with the B-2).



CAPE prepares an ICE for aviation programs at major milestones, in response to Nunn-McCurdy breaches, and when requested to do so by the Under Secretary of Defense for Acquisition, Technology, and Logistics. For most programs, the latest SCP is newer than the CAPE ICE and incorporates the ICE plus developments that occurred after the ICE was prepared. The CAPE ICE almost always differs from the last SCP conducted before the ICE by more than 0.5%.

The table below lists programs currently having both an up-to-date SCP and an up-to-date CAPE ICE and shows the percentage difference between these positions. These are the only cases where the difference between the ICE and the SCP is relevant to the funding data presented in this report. For all other aircraft types, the funding data used in this report is based on historical procurement/sustainment costs, an SCP that is much newer than the ICE, an SCP that has not yet been followed by an ICE, or analogies with other programs. In each case of relevance to the funding data in this report, the CAPE ICE projects greater costs than the SCP. Each program ICE explains, in detail, the reasons for differences from the SCP. A shorter and simplified explanation for the differences appears below the table.

Program	Delta
KC-46 tanker	2%
E-2D Advanced Hawkeye	7%
F-35 Joint Strike Fighter	5%
P-8A Poseidon	2%
AH-64 Apache Block 3A	1%
AH-64 Apache Block 3B	4%
Delta = (ICE – SCP)/SCP	

KC-46 Tanker. The CAPE and SCP cost estimates for the KC-46 are about two percent different in total. The difference is primarily driven by procurement. Procurement differences can be attributed to expectations of the concession rates that can be achieved when procuring the commercial ("green") aircraft to be modified. Differences can also be attributed to the estimated costs of procuring and installing mission systems on this "green" aircraft

E-2D Advanced Hawkeye. The difference between the CAPE and SCP cost estimates for the E-2D is primarily attributed to the areas of procurement (4%) and O&S (11%). For example, CAPE employed actuals, adjusted for content and fee assumptions, based on historical learning and rate curves to estimate radar production costs. The SCP, in contrast, derived the estimate from a combination of System Development and Demonstration (SDD) and pilot production actuals, with a step-down factor based on a recent RAND study. Also, the CAPE projection for aircraft fabrication hours is based on E-2C historical experience, with a forecast to decrease as engineering changes diminish over time. The SCP estimate for engineering support is based on pilot production staffing levels without decreases over time. The CAPE O&S estimate is based on E-2C data from the Navy Visibility and Management of Operating and Support Costs (VAMOSOC) system and reflects manpower levels greater than those assumed in the Manpower Estimate Report (MER). The Cape estimate also assumes a higher number of aircraft and flight hours per squadron than the SCP.

F-35 Joint Strike Fighter. The difference between the CAPE and SCP cost estimates for the F-35 is primarily attributed to the areas of procurement (2%), MILCON (86%), and O&S (6%). The largest difference between CAPE and SCP estimates of procurement costs is attributable to the assumed future levels of commonality between F-35 variants. The CAPE estimate reflects less commonality among the three F-35 variants than the SCP estimate and, as a result, the CAPE estimates of variant unit costs are higher because of the inherent procurement inefficiencies associated with reduced commonality. The SCP estimate for MILCON uses previously-generated, narrowly defined service estimates that did not include all MILCON efforts required to support the entire F-35 fleet. The CAPE estimate is based on the facilities and infrastructure required for the joint training center planned for Elgin Air Force Base, and service-specific requirements for the Air Force, the Marine Corps, and the Navy. To estimate O&S costs, the SCP reflects the manning structure outlined in the MER. The CAPE estimate adjusts mission personnel to better reflect the actual staffing of the F-16 and F-22, which are on average more senior in grade than those in the MER. Also, the CAPE estimate of unit-level consumption costs is higher than the SCP, primarily because the CAPE estimate uses an F-22 analogy for government-provided consumables while the SCP uses legacy Navy data. The CAPE estimate also applies cost growth to both the air vehicle and engine, while the SCP applies cost growth only to the air vehicle.

P-8A POSEIDON. The CAPE and SCP cost estimates for the P-8A are nearly identical, with small differences in procurement (2%) and O&S (2%). The CAPE estimate for procurement is higher primarily due to differences in assumed cost escalation for both the base aircraft and P-8A- unique modifications over time. For the base aircraft, the SCP uses a contractor proposed Producer Price Index (PPI) while CAPE uses slightly higher escalation factors based on the historical difference between the aircraft procurement budget escalation indices and the aircraft PPI for the past ten years. For the P-8A-unique modifications, the SCP assumes a contractor estimated level of reasonable changes, while CAPE assumes that modifications costs will grow over time, due to more typical engineering changes in early production. For O&S the largest difference in the estimates is in unit personnel, where CAPE assumes manning numbers as identified in the MER while the SCP adjusts the enlisted military personnel numbers down to reflect predicted authorizations.

AH-64 Apache Block 3A/3B. The differences between the CAPE and SCP cost estimates for the Apache Block 3A and Block 3B programs are primarily attributed to RDT&E for Block 3A (11%) and procurement for Block 3A and 3B (11% and 7% respectively). The difference in RDT&E is driven primarily by software development activities. The CAPE cost estimates for these activities were developed by first estimating the cost of the remaining development based on Phase 1 software productivity, and then constraining program execution over time to the currently available software engineering staff. In contrast, the SCP did not constrain program execution to the available software development staff, so the RDT&E effort requires more resources up front than the CAPE estimate and finishes earlier. This approach would require the contractor to temporarily increase its software engineering staff; an action CAPE maintains is counterproductive and inefficient. The CAPE estimates for both Block 3A and 3B procurement are moderately higher than the SCP due to differing assumptions for labor and material learning curves, material escalation rates, and the production break impact resulting from the transition from the Apache Block 2 production line to the new Block 3 line.

Confidence Levels. CAPE cost estimates are built upon a product-oriented work breakdown structure, based on historical actual cost information to the maximum extent possible, and most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful. It is difficult to calculate mathematically the precise confidence levels associated with CAPE life-cycle cost estimates prepared for MDAAP programs. Based on the rigor in methods used in building CAPE estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, it is equally likely that the CAPE estimate will prove too low or too high for execution of the described program.