

The background of the entire page is a dark blue collage of white line-art illustrations of various military and defense systems. These include several fighter jets (F-35, F-22, F-16), a satellite in orbit, a submarine, a large aircraft carrier, a helicopter, a missile, and a military vehicle. The text is overlaid on this collage.

CSBA

Center for Strategic and Budgetary Assessments

FY 2015 WEAPON SYSTEMS FACTBOOK

TODD HARRISON
JACOB COHN

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2014

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ABOUT THE CENTER FOR STRATEGIC AND BUDGETARY ASSESSMENTS

The Center for Strategic and Budgetary Assessments (CSBA) is an independent, nonpartisan policy research institute established to promote innovative thinking and debate about national security strategy and investment options. CSBA's goal is to enable policymakers to make informed decisions on matters of strategy, security policy, and resource allocation. CSBA provides timely, impartial, and insightful analyses to senior decision makers in the executive and legislative branches, as well as to the media and the broader national security community. CSBA encourages thoughtful participation in the development of national security strategy and policy, and in the allocation of scarce human and capital resources. CSBA's analysis and outreach focus on key questions related to existing and emerging threats to U.S. national security. Meeting these challenges will require transforming the national security establishment, and we are devoted to helping achieve this end.

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INTRODUCTION

Each year, the Department of Defense (DoD) submits a Selected Acquisition Report (SAR) to Congress detailing the status, plans, and funding requirements for more than 80 major acquisition programs. The most recent SAR, submitted in December 2013, projects funding and quantities for major acquisition programs extending more than 30 years into the future. The SAR projects these programs will need \$324 billion over the Future Years Defense Program (FYDP), spanning FY 2015 to FY 2019, and an additional \$498 billion in FY 2020 and beyond.

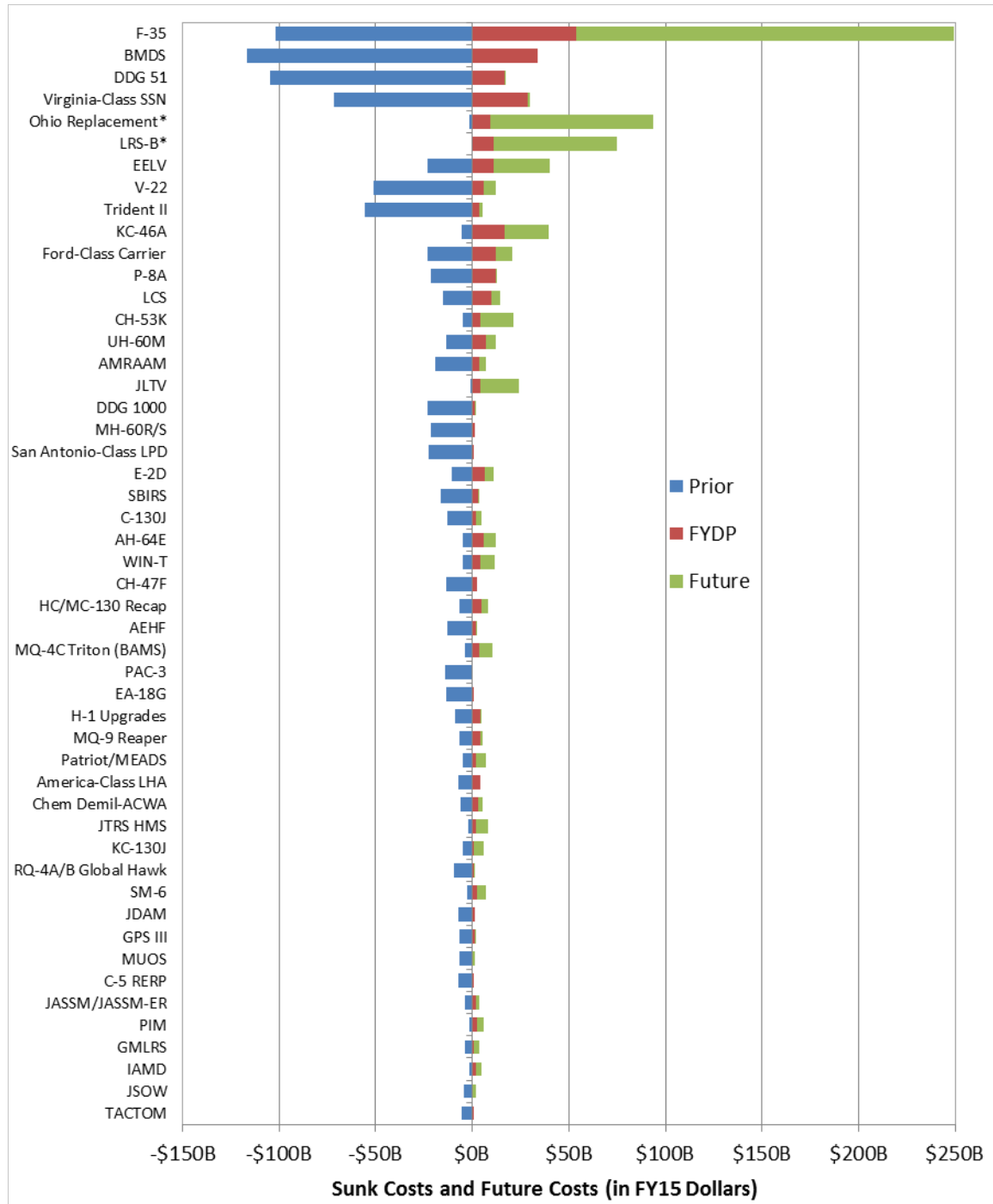
This report summarizes the program plans and funding for each of the major acquisition programs included in the SAR and two additional programs. The Air Force's Long Range Strike-Bomber (LRS-B) and the Navy's Ohio-Class Replacement programs are not yet reported in the SAR, but enough is known about each program to construct a reasonable cost estimate. The LRS-B and Ohio Replacement programs are among the largest acquisition programs in DoD's portfolio, as shown in the figure on the following page, and any discussion of major acquisitions would be incomplete without them. The programs included in this report represent 39 percent of the total acquisition budget in the FY 2015 FYDP. The remaining 61 percent of funding is used for hundreds of smaller acquisition programs not reported in the SAR or other programs too early in development to be included in the SAR.

The report is divided by categories of weapon systems: aircraft, air and missile defense, communications and electronics, ground systems, missiles and munitions, nuclear forces, shipbuilding, and space systems. The aircraft category is the largest among these, both in terms of the number of programs and the total funding projected. It includes fixed-wing, rotary-wing, and manned and unmanned aircraft for all four Services.

Unless otherwise noted, the cost and quantity figures used in this report are from the December 2013 SAR obtained through a Freedom of Information Act Request. The SAR data does not include complete funding projections for some programs, as is noted throughout the report. Unlike other CSBA budget analyses, cost figures in this report are shown in then-year dollars unless otherwise noted.¹

¹ Then-year dollars are used to show the projected funding levels of programs when a comparison is not being made to any other program. When programs are compared to one another, as in the figure on p. 2, constant-year FY 2015 dollars are used to adjust for the effects of inflation over the different time periods the programs being compared may span.

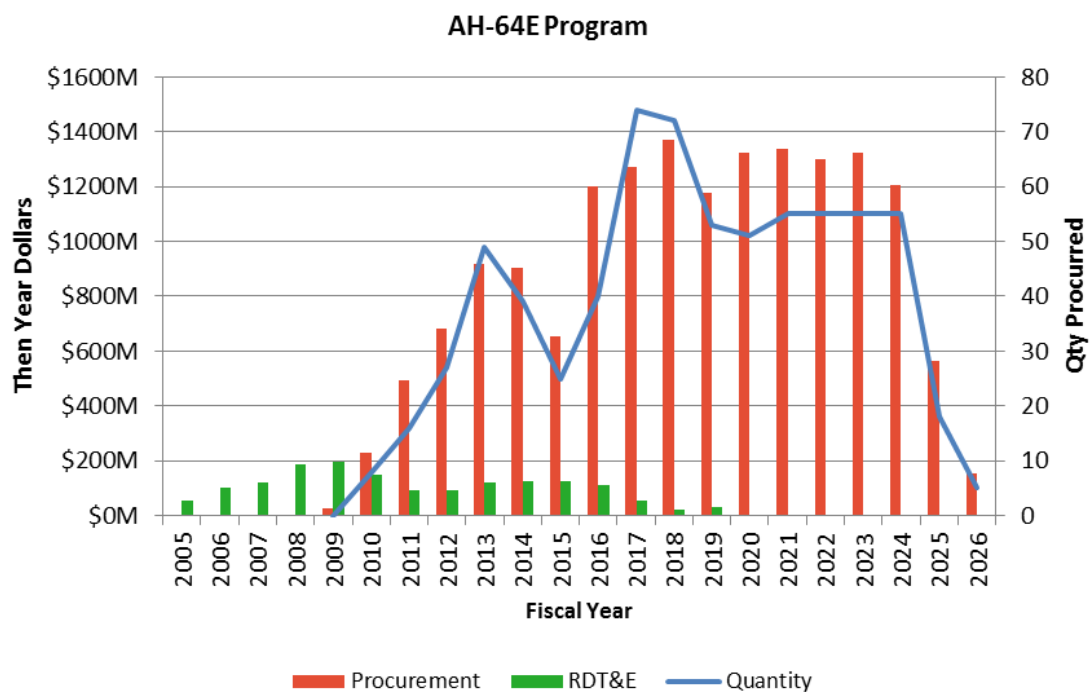
Top 50 Acquisition Programs By Total Funding



AIRCRAFT

AH-64E Apache

The AH-64E Apache Attack Helicopter integrates Longbow components and other modernized systems, including the capability to use newer munitions. Some AH-64E helicopters are remanufactured versions of existing aircraft and others are newly built through the program. The AH-64E is intended to be fully “network-centric” and interoperable with current and future Army forces, while having a smaller logistics footprint and lower operating costs than previous iterations of the Apache.² The AH-64E entered full-rate production in March 2014.³ A total of \$4.5 billion has been appropriated through FY 2014 for 128 remanufactured and 16 new helicopters. An additional \$6.0 billion is requested over the FYDP for 264 remanufactured helicopters, and \$7.2 billion is planned for beyond the FYDP for 247 remanufactures and 47 newly built systems.⁴



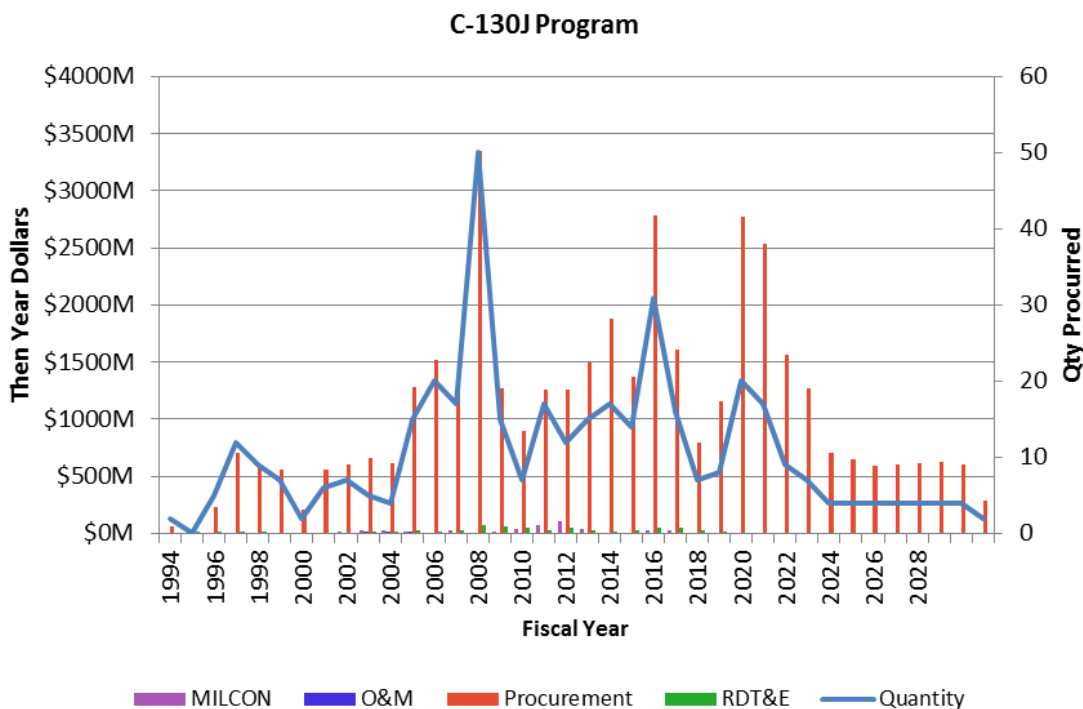
² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_03_AH-64E_NewBuildDecember2013SAR.PDF.

³ Jon Hemmerdinger. “Apache AH-64E enters full-rate production.” *FlightGlobal*, March 5, 2014, <http://www.flightglobal.com/news/articles/apache-ah-64e-enters-full-rate-production-396665/>.

⁴ Five remanufactured helicopters were procured with RDT&E funding, but are not included in the quantity line.

C-130J Variants

DoD is procuring several variants of the C-130J aircraft. The C-130J aircraft provides medium-range, tactical airlift to transport cargo and personnel within a theater of operations. It can carry more than 40,000 pounds of cargo or up to 84 paratroopers, and the stretched version has 30% more useable volume over previous versions.⁵ The HC/MC-130J variant provides aerial refueling and infiltration, supply, and recovery of specialized tactical ground units. It climbs faster and higher and can take off and land within a shorter distance than previous models.⁶ The KC-130J air-to-air refueling variant is being procured for the Marine Corps to replace the KC-130 F/R/T aircraft. The KC-130J can be configured to support refueling, troop transport, cargo delivery, medical evacuation, intelligence, surveillance, and reconnaissance activities, and close air support.⁷ A total of \$21.1 billion has been appropriated through FY 2014 for the development and procurement of 129 C-130Js, 63 HC/MC-130Js, and 52 KC-130Js. An additional \$7.9 billion is requested over the FYDP for 23 C-130Js, 47 HC/MC-130Js, and 6 KC-130Js. Beyond the FYDP, the Services project an additional \$12.8 billion in funding for 16 C-130Js, 21 HC/MC-130Js, and 46 KC-130Js, with procurements of the KC-130J variant continuing until FY 2031.



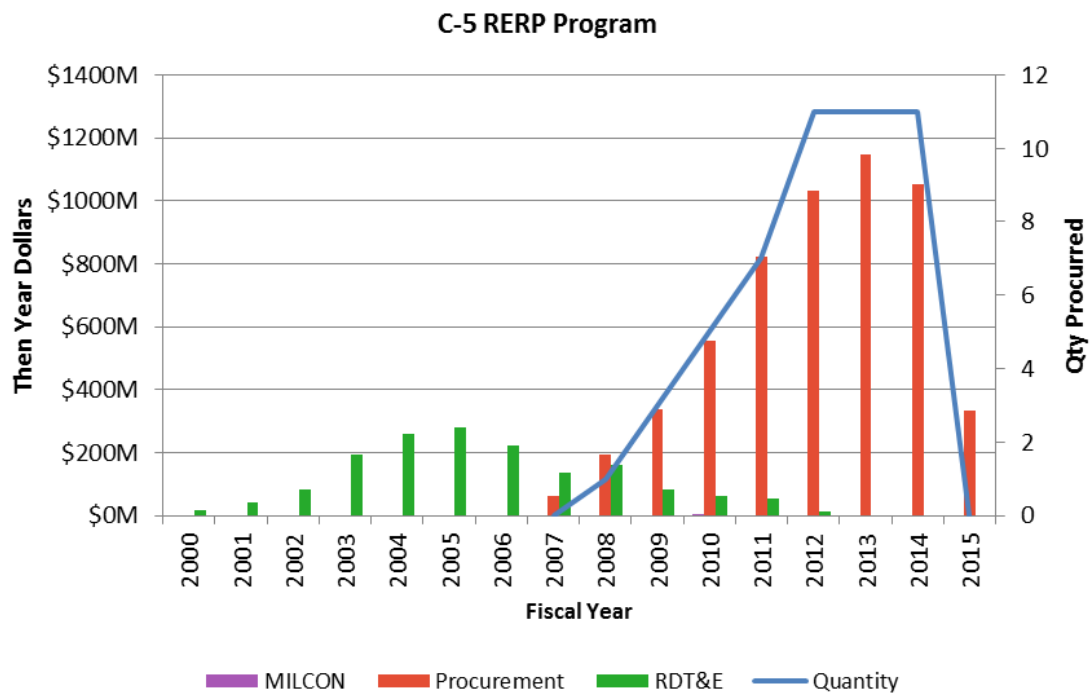
⁵ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_14_C-130JDecember2013SAR.PDF.

⁶ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_35_HC_MC-130RecapDecember2013SAR.PDF.

⁷ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_47_KC-130JDecember2013SAR.PDF.

C-5 Reliability Enhancement and Re-engineing Program (C-5 RERP)

The C-5 RERP program is the second phase of a two-part modernization effort for the C-5. The first phase modernized aircraft avionics and the second phase will improve aircraft reliability and availability by replacing the current engine with a more reliable commercial engine. After the completion of the second phase, each C-5 will be designated a C-5M. Initial operating capability was declared in February 2014 after the sixteenth C-5M was delivered of the 52 currently planned.⁸ A total of \$6.8 billion has been appropriated through FY 2014 and an additional \$332 million is requested for the completion of the program in FY 2015.⁹

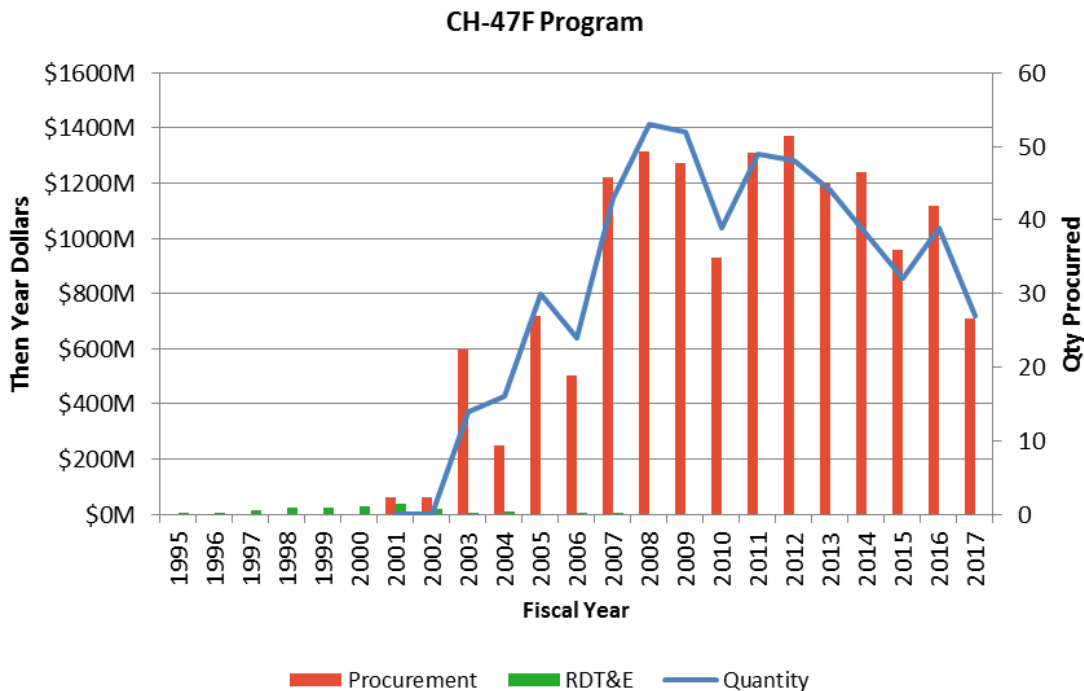


⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_13_C-5_RERPDecember2013SAR.PDF.

⁹ The modernization of three C-5 aircraft was funded with RDT&E spending and is not reflected in the quantity line.

CH-47F Improved Cargo Helicopter (CH-47F)

The CH-47F is a twin-engine, heavy-lift helicopter used to transport ground forces, supplies, and other battle-critical cargo in support of maneuver, fire support, air defense, and survivability missions. The program is composed of both remanufactured and new aircraft. New structural components and modifications have increased operating efficiency, crew endurance, and decreased the time required to deploy the CH-47F helicopter utilizing the strategic mobility of C-5 or C-17 transport aircraft. The program is on schedule and in full-rate production.¹⁰ A total of \$12.2 billion has been appropriated through FY 2014 and \$2.8 billion is requested through the end of the program in FY 2017.¹¹

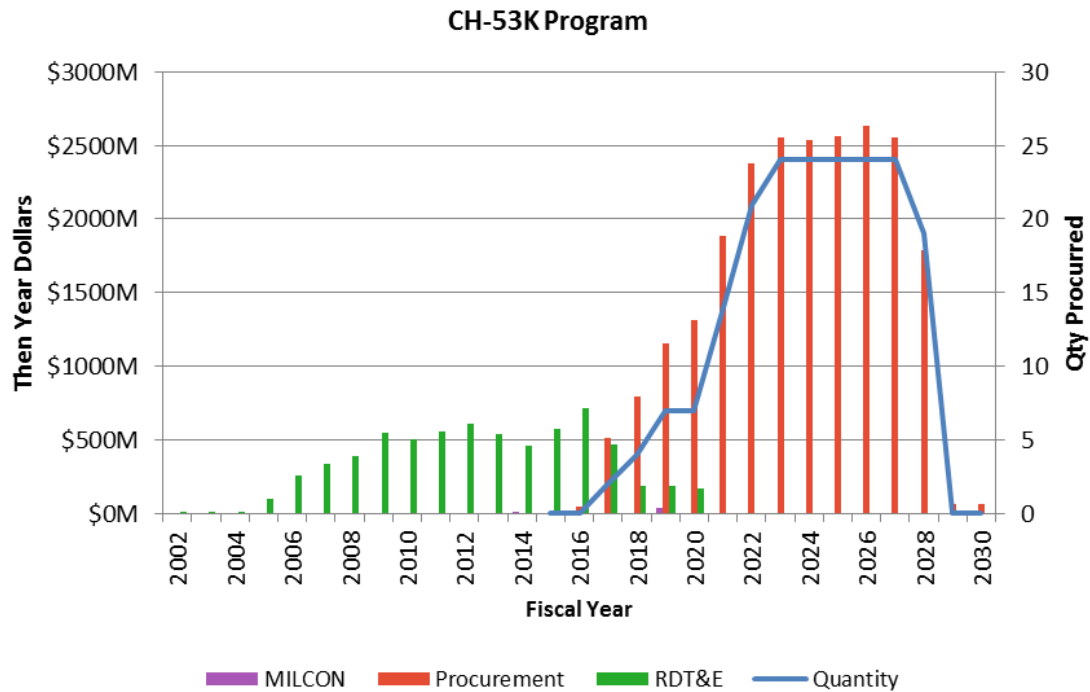


¹⁰ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_16_CF-47F_December2013SAR.PDF.

¹¹ Two CH-47F helicopters were procured with RDT&E funding, but are not included in the quantity line.

CH-53K Heavy Lift Replacement Helicopter (CH-53K)

The CH-53K is intended to replace the heavy-lift function of the CH-53E, providing increased range, payload, survivability, force protection, reliability, maintainability, and coordination with other assets, while reducing total ownership costs. While the program has experienced development delays, flight testing is expected to begin in late 2014 and the low-rate production decision is scheduled for February 2016.¹² The program expects to procure 200 helicopters through FY 2028. A total of \$4.3 billion has been appropriated through FY 2014, \$4.7 billion is requested over the FYDP, and \$20.5 billion is planned for beyond the FYDP.¹³

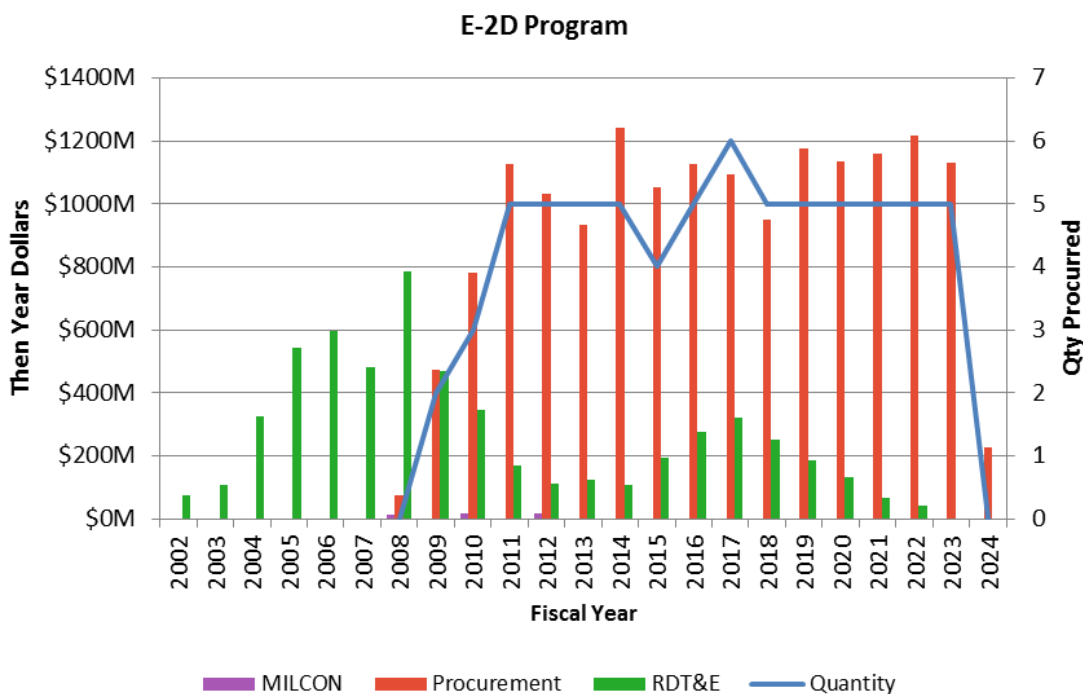


¹² GAO, *Defense Acquisitions of Selected Weapon Programs* (Washington, DC: GAO, 2014), available at <http://www.gao.gov/assets/670/662184.pdf>, p. 57–58.

¹³ Six CH-53K helicopters were procured with RDT&E funding and are not included in the quantity line.

E-2D Advanced Hawkeye Aircraft (E-2D AHE)

The E-2D replaces the E-2C as a carrier-based multi-mission aircraft for command and control (C2) and surveillance. The radar on the E-2D is designed for advanced threat aircraft and cruise missiles in the overland, littoral, and open ocean environments. The E-2D began full-rate production in FY 2013, and procurement is projected to continue through FY 2023.¹⁴ Overall program costs increased in the most recent budget because ten aircraft were pushed from the FYDP to later years.¹⁵ A total of \$9.9 billion has been appropriated through FY 2014 for the development and procurement of the first 30 aircraft. An additional \$6.6 billion is requested over the FYDP for 25 aircraft, and \$5.1 billion is planned for 20 aircraft procurements beyond the FYDP.¹⁶



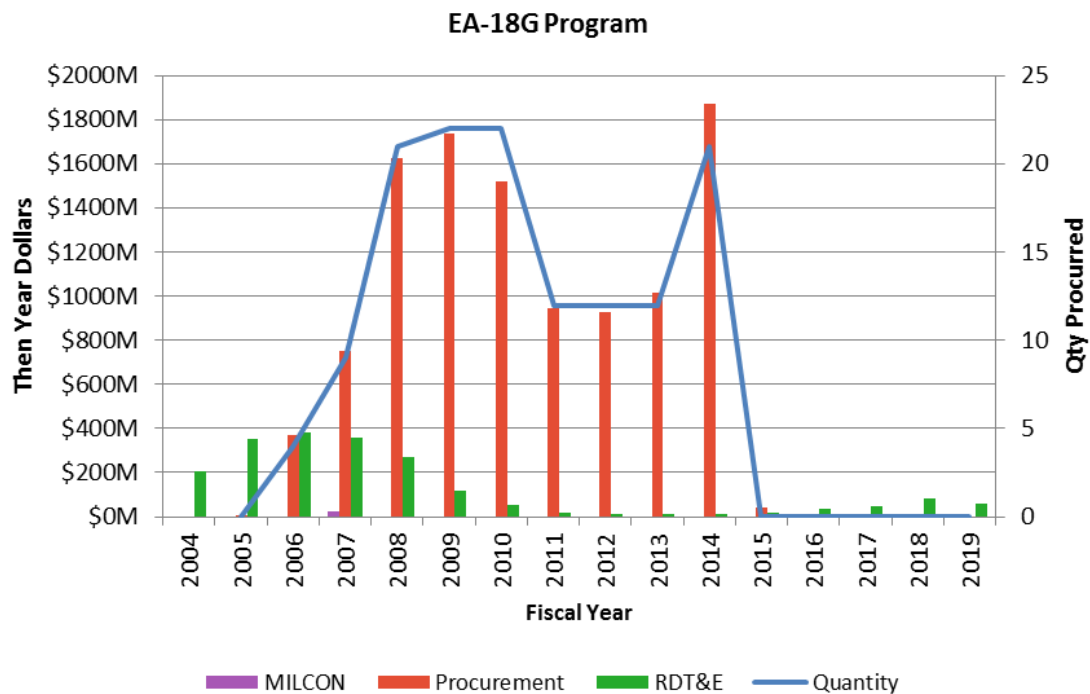
¹⁴ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_22_E-2DAHEDecember2013SAR.PDF.

¹⁵ DoD. *Department of Defense Selected Acquisition Reports (SARs) (as of December 31, 2013)*. <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16644/>.

¹⁶ Five E-2D aircraft were procured with RDT&E funding and are not reflected in the quantity line.

EA-18G Growler Aircraft (EA-18G)

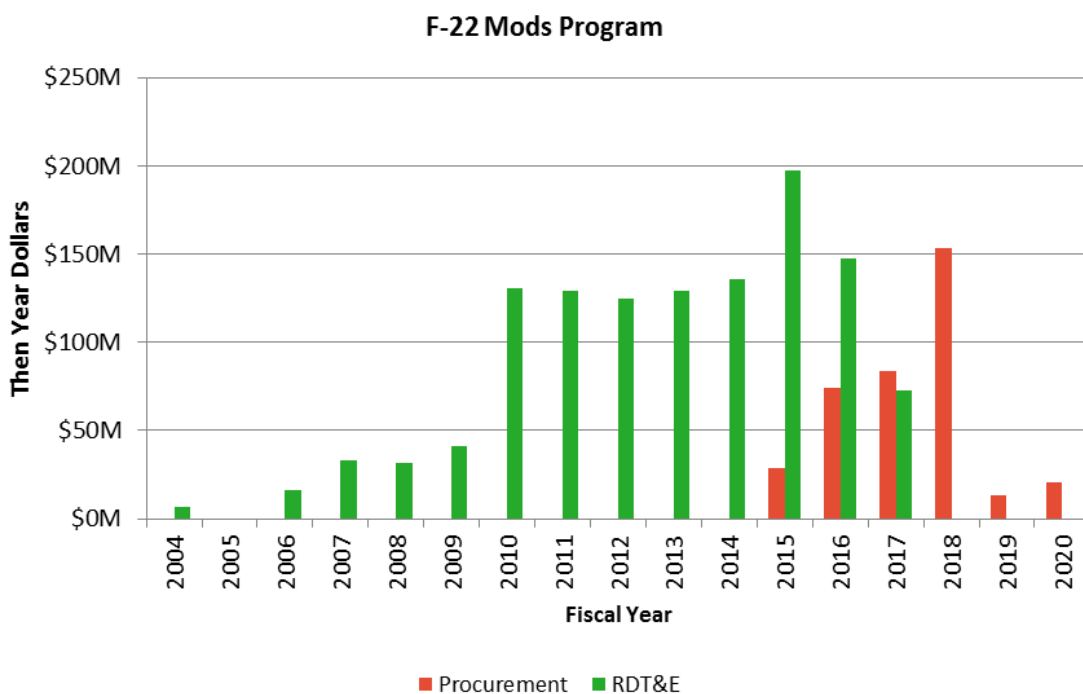
The Growler variant of the F/A-18 aircraft replaces the EA-6B and provides the ability to detect, identify, locate, and suppress enemy air defenses and communications. The Navy has procured 135 aircraft through FY 2014, and no additional aircraft are currently planned. The Navy also received three additional aircraft from Boeing in FY 2014 as part of the settlement of unrelated litigation stemming from the cancellation of the A-12 program more than two decades ago.¹⁷ A total of \$12.6 billion has been appropriated through FY 2014, and \$0.3 billion is requested over the FYDP for the balance of the program.



¹⁷ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_23_EA-18GDecember2013SAR.PDF.

F-22 Increment 3.2B (F-22 Mods)

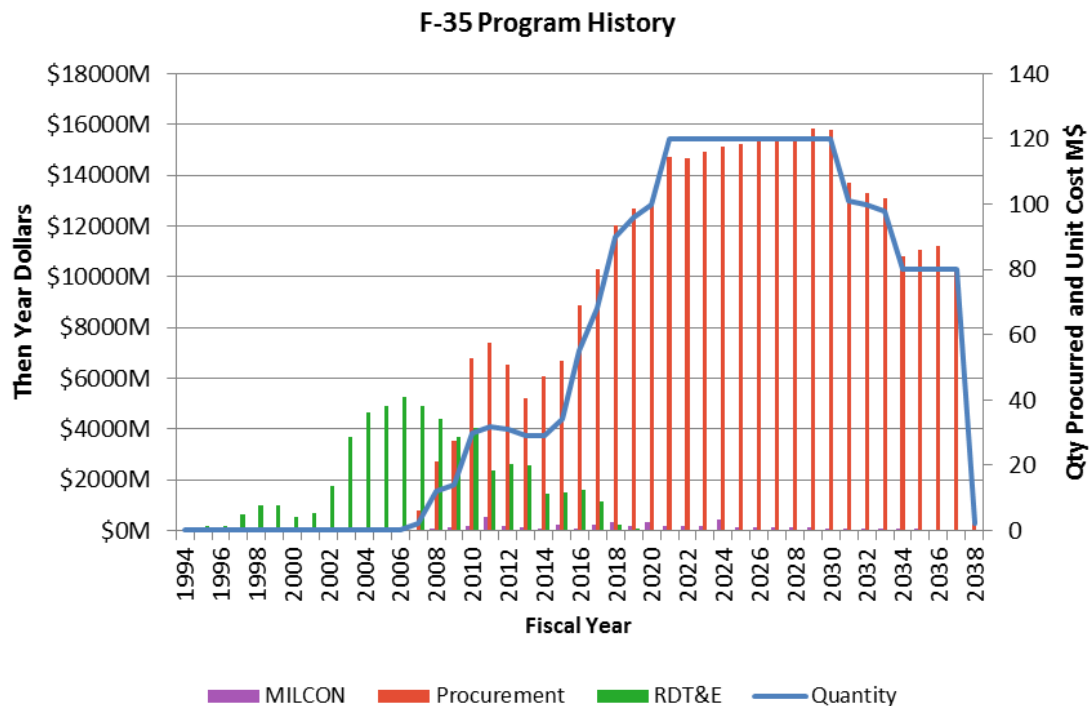
The F-22 is a stealthy, short-range air-to-air and air-to-ground aircraft. The F-22 modernization program, established in 2003, is intended to upgrade the air-to-ground, information warfare, reconnaissance, and other capabilities of the aircraft to improve performance, reliability, and maintenance. The current increment, 3.2B, enhances electronic protection, geolocation, and intra-flight data link capabilities. It also enables the aircraft to use the AIM-9X and AIM-120D missiles. A critical design review is planned for late 2015 and a low rate production decision is expected in late 2016.¹⁸ A total of \$0.8 billion has been appropriated through FY 2014, an additional \$0.8 billion is requested over the FYDP, and \$21 million is planned for beyond the FYDP.



¹⁸ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 67–68.

F-35 Joint Strike Fighter (JSF)

The F-35 is a joint program to develop a family of fifth generation strike fighter aircraft for the Air Force, Navy, and Marine Corps. It is the single largest acquisition program in DoD. The F-35 is intended to replace the A-10, F-16, AV-8B, and F/A-18C/D, while complementing the F/A-18E/F and F-22A. The program continues to experience design changes as the development of critical technology and software continues.¹⁹ The F-35 fleet was placed under temporary restrictions because of an engine malfunction on June 23, 2014.²⁰ The program has experienced development difficulties in the past, which have delayed the initial operating capability dates and increased the acquisition and sustainment costs of the program.²¹ A total of \$90.9 billion has been appropriated through FY 2014, which includes procurement funding for 179 aircraft. An additional \$56.0 billion is requested over the FYDP for continued development and testing and the procurement of 343 aircraft. Beyond the FYDP, DoD projects it will need \$251.7 billion to procure the remaining 1,921 aircraft currently planned.²²



¹⁹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 69–70.

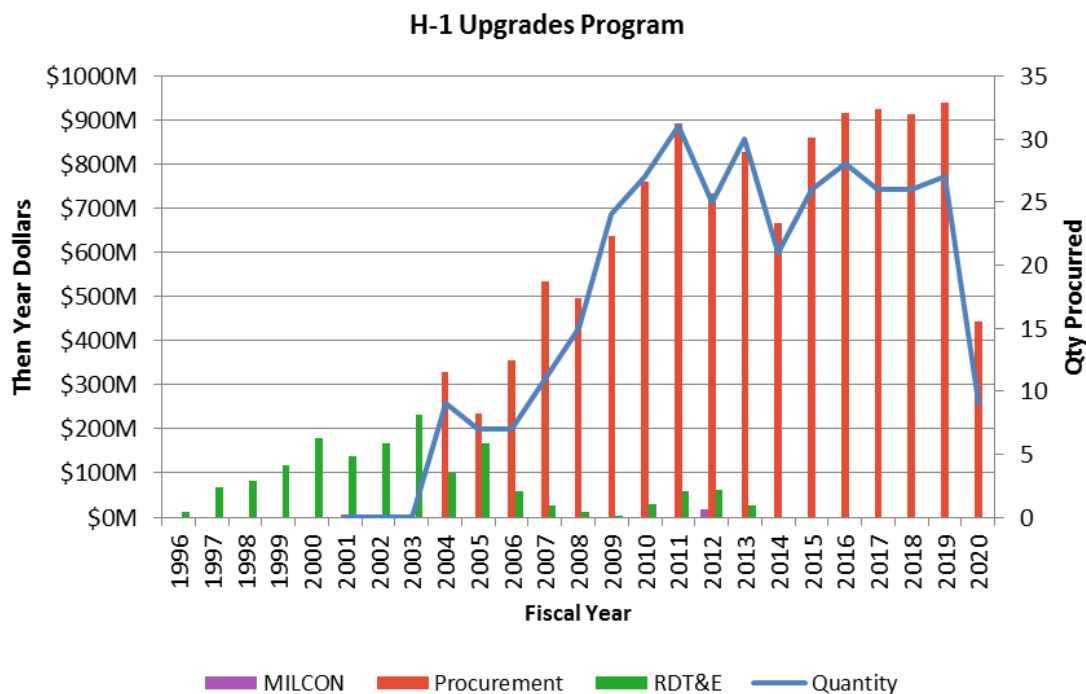
²⁰ Inside Defense, “Flight Restrictions Kept in Place for F-35 Operational Aircraft,” July 30, 2014, <http://insidedefense.com/201407302478129/Inside-Defense-Daily-News/DefenseAlert/flight-restrictions-kept-in-place-for-f-35-operational-aircraft/menu-id-61.html>.

²¹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 69–70.

²² Fourteen F-35 aircraft were procured with RDT&E funding, but are not included in the quantity line.

H-1 Upgrades (4BW/4BN)

The H-1 upgrade program provides increased maneuverability, speed, and payload capability to the AH-1Z attack helicopter and the UH-1Y utility helicopter. To date, 184 helicopters have been procured and/or remanufactured under the program. Upgraded helicopters are currently being used in Afghanistan. The program is also pursuing foreign military sales opportunities, and Pakistan has formally requested 12 AH-1Z aircraft.²³ A total of \$8.0 billion has been appropriated through FY 2014, \$4.6 billion is requested over the FYDP, and \$0.4 billion is planned for the final year of the program in FY 2020.²⁴

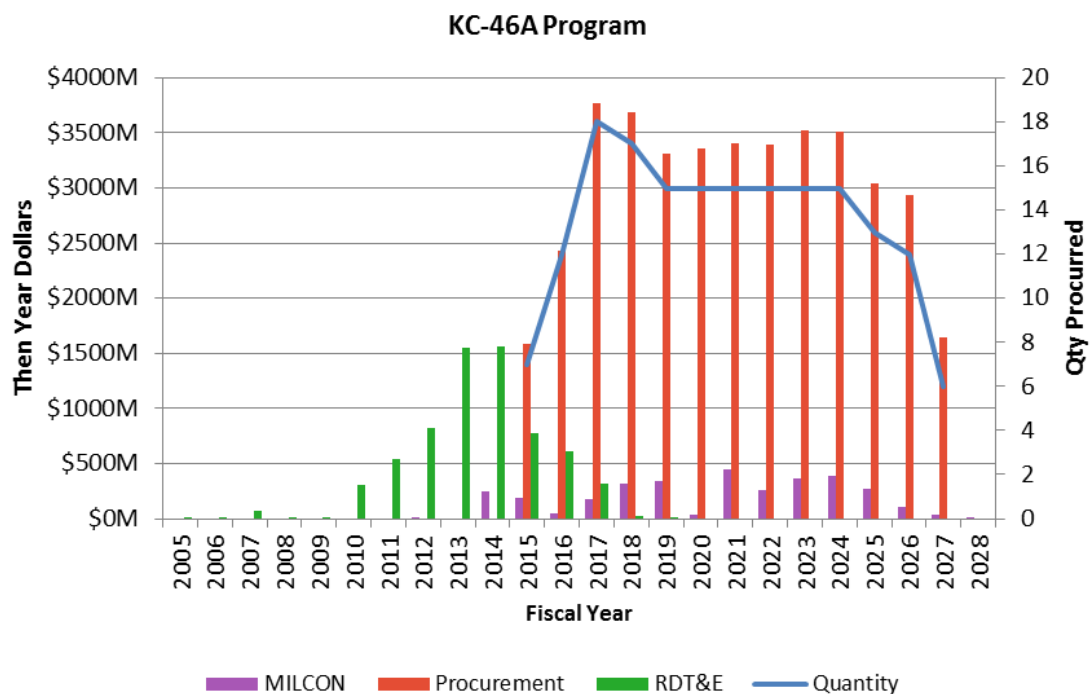


²³ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_34_H-1UpgradesDecember2013SAR.PDF.

²⁴ Four H-1 helicopters were upgraded through RDT&E funding, but are not included in the quantity line.

KC-46 Tanker Modernization Program (KC-46A)

The Air Force's KC-46A is a modified Boeing 767 for use as an aerial refueling tanker to support U.S. and allied aircraft. This program is the first of three planned phases to replace the KC-135 tankers and will provide increased refueling capacity and efficiency as well as cargo, aeromedical evacuation, and defensive capabilities. Boeing has begun production of the four development aircraft, and a total of 179 aircraft are planned. The Air Force has identified "software and hardware integration and the aggressive nature of the KC-46 flight test schedule as top program risks."²⁵ A total of \$5.2 billion has been appropriated through FY 2014. The Air Force has requested \$17.6 billion over the FYDP for 69 aircraft, and \$26.7 billion is planned for beyond the FYDP to procure an additional 106 aircraft.²⁶

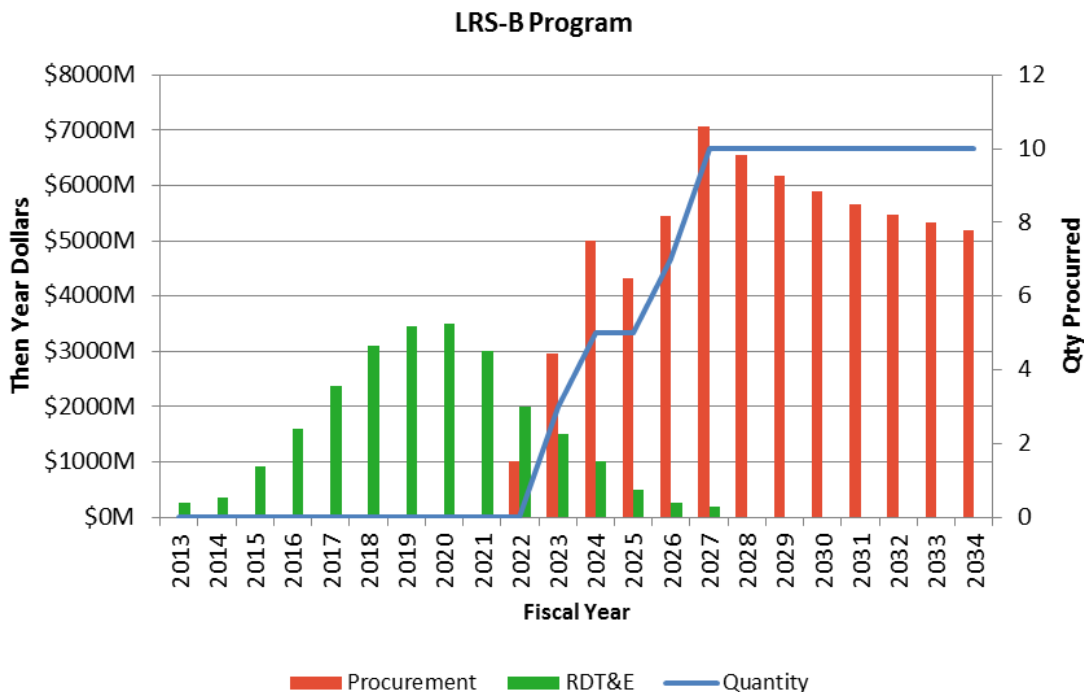


²⁵ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 89–90.

²⁶ Four KC-46A aircraft were procured with RDT&E funding and are not included in the quantity line.

Long Range Strike-Bomber (LRS-B)

The Air Force initiated funding for the LRS-B program in the FY 2013 budget. It is intended to be a long-range, all-aspect/broadband stealth aircraft that is nuclear capable and optionally manned. LRS-B is considered a special access program and thus does not report detailed program information in unclassified budget justification documents. The Air Force issued a request for proposals in July 2014 and expects to down-select to a single contractor in 2015.²⁷ While a formal cost estimate has not yet been release and the program is not included in DoD's most recent SAR, the Air Force has revealed some cost information. It has stated from the beginning that the program would be capped to an average procurement unit cost of \$550 million, in FY 2010 dollars, for a projected buy of up to 100 aircraft beginning in the mid-2020s.²⁸ The FY 2015 budget also shows annual RDT&E funding for the program ramping up from \$0.9 billion in FY 2015 to \$3.5 billion in FY 2019. Assuming RDT&E costs begin to level off in FY 2020 and gradually decline in subsequent years, the total development cost would be roughly \$24 billion. Assuming procurement funding begins in the early 2020s and ramps up gradually to full rate production of ten aircraft per year in the late 2020s, a total buy of 100 aircraft would be completed in the mid-2030s at a total procurement cost of roughly \$66 billion in then-year dollars (the equivalent of an average procurement unit cost of \$550 million in FY 2010 dollars). Thus the total cost of the program would be roughly \$90 billion in then-year dollars (or \$73 billion in FY 2015 dollars).

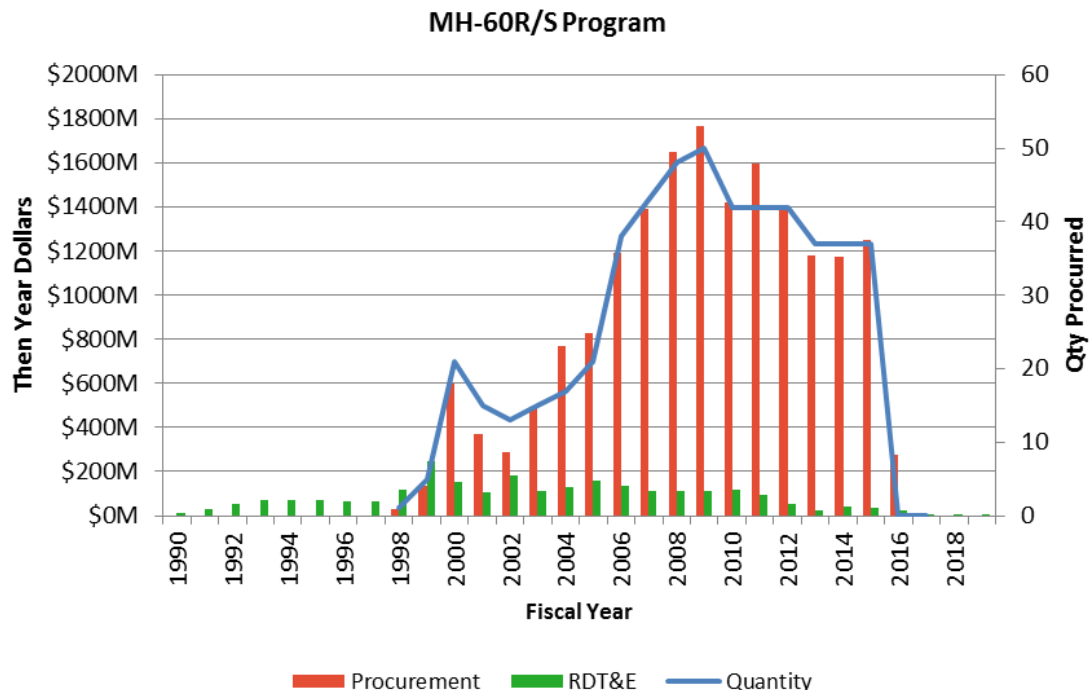


²⁷ Department of the Air Force, "AF moves forward with future bomber," news release, July 12, 2014, accessed on August 26, 2014 at: <http://www.af.mil/News/ArticleDisplay/tabid/223/Article/486167/af-moves-forward-with-future-bomber.aspx>.

²⁸ Ibid.

MH-60R and MH-60S

Both the MH-60R and MH-60S are Navy variants of the Army's UH-60 Blackhawk helicopter. The MH-60R is used for anti-submarine warfare and surface warfare, search and rescue, logistics, transportation, and medical evacuation. It replaces the SH-60B and SH-60F helicopters and provides improved avionics, sonar, radar, and defensive capabilities. The MH-60R is in full rate production, and the Navy plans to acquire a total 251 of this variant.²⁹ The MH-60S Block 1 is used for resupply and transportation of personnel, mail, and cargo. The Block 2 version of the MH-60S can also be used for airborne mine countermeasure missions, and the Block 3 version can perform surface warfare, force protection, and combat search and rescue activities.³⁰ The Navy plans to procure a total of 275 MH-60Ss. The program is nearing completion, with the final procurements of both aircraft planned for FY 2015. A total of \$18.7 billion has been appropriated through FY 2014, and \$1.6 billion is requested over the FYDP.³¹



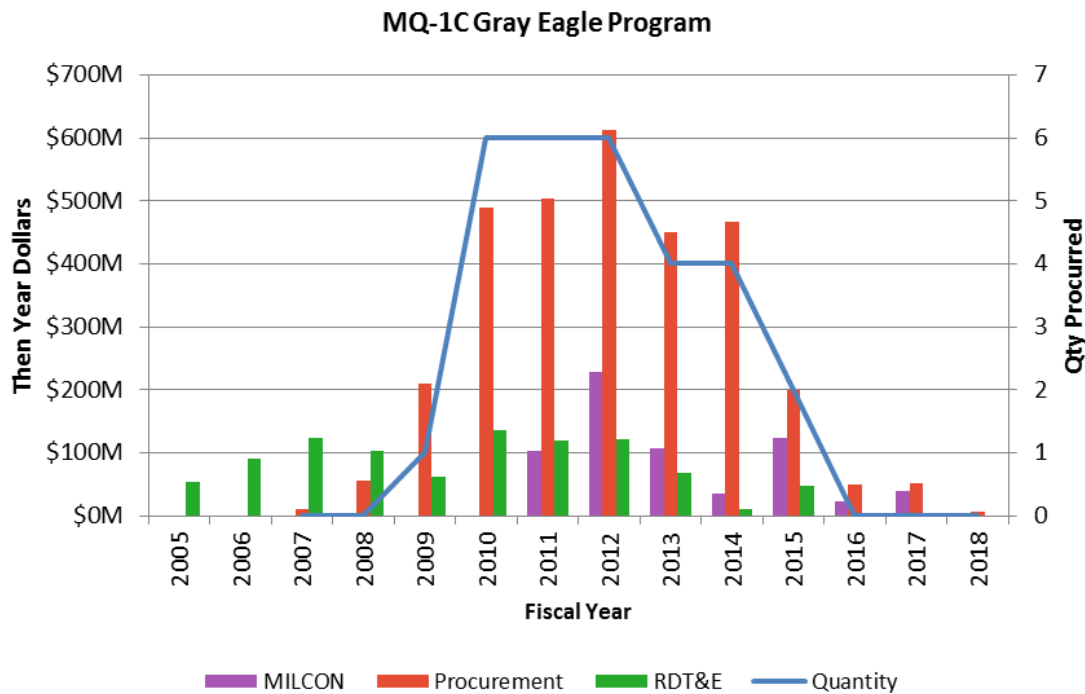
²⁹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_52_MH-60RDecember2013SAR.PDF.

³⁰ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_53_MH-60SDecember2013SAR.PDF.

³¹ Two MH-60R helicopters were procured with RDT&E funding, but are not included in the quantity line.

MQ-1C Gray Eagle Unmanned Aircraft System (MQ-1C Gray Eagle)

The Army's MQ-1C Gray Eagle is an upgraded and armed version of the Air Force's MQ-1 Predator unmanned aircraft.³² It is used for reconnaissance, surveillance, target acquisition, and attack missions. A Gray Eagle unit typically consists of four MQ-1C unmanned aircraft and associated ground support systems.³³ A total of \$4.2 billion has been appropriated through FY 2014, and an additional \$0.5 billion is requested over the FYDP. Procurement of the Gray Eagle ends in FY 2015.³⁴



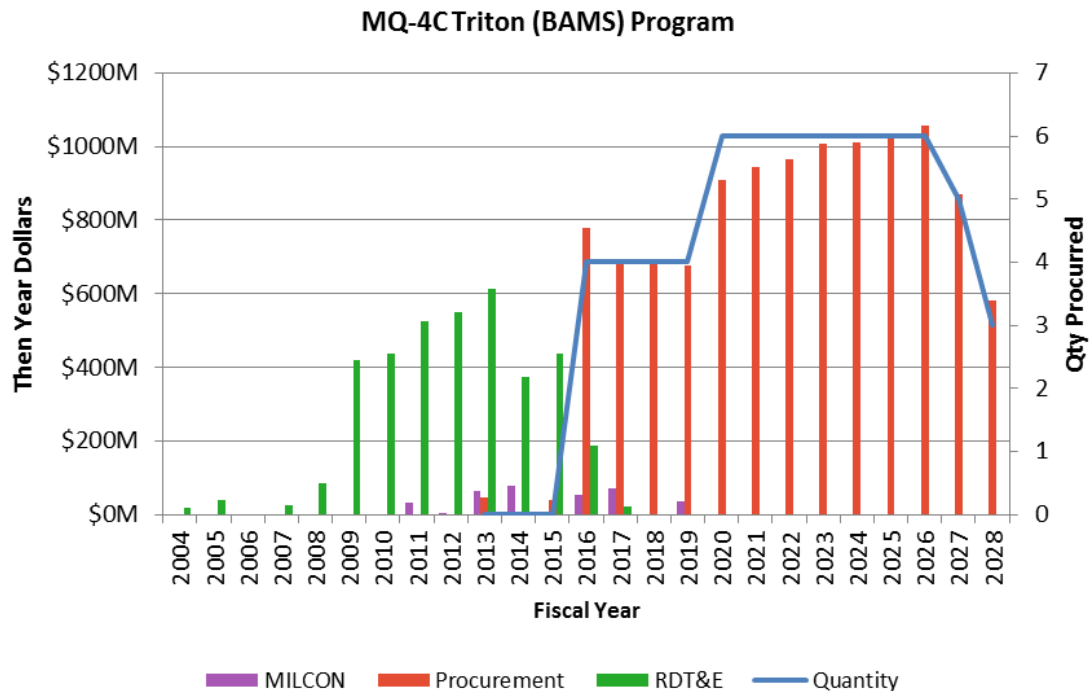
³² General Atomics Aeronautical, *Gray Eagle™ UAS*, 2014, http://www.ga-asi.com/products/aircraft/gray_eagle.php.

³³ Department of the Army, *Exhibit P-40, Budget Line Item Justification, Aircraft Procurement, Army* (Washington, DC: DoD, March 2014), p. 23.

³⁴ Two Gray Eagle units were procured with RDT&E funding, but are not included in the quantity line.

MQ-4C Triton Unmanned Aircraft System

The Navy's MQ-4C Triton, formerly known as BAMS, is designed to provide persistent maritime intelligence, surveillance, and reconnaissance. It is based on the Air Force's RQ-4B Global Hawk and will operate from five land-based sites. Future planned improvements include a signals intelligence collection capability and an upgraded systems communication relay. The program is considering alternatives for the Triton's air-to-air radar and has delayed the production decision by one year to November 2014 with operational testing scheduled to begin in FY 2016.³⁵ A total of \$3.3 billion has been appropriated through FY 2014, \$3.7 billion is requested over the FYDP, and \$8.4 billion is planned for beyond the FYDP.³⁶

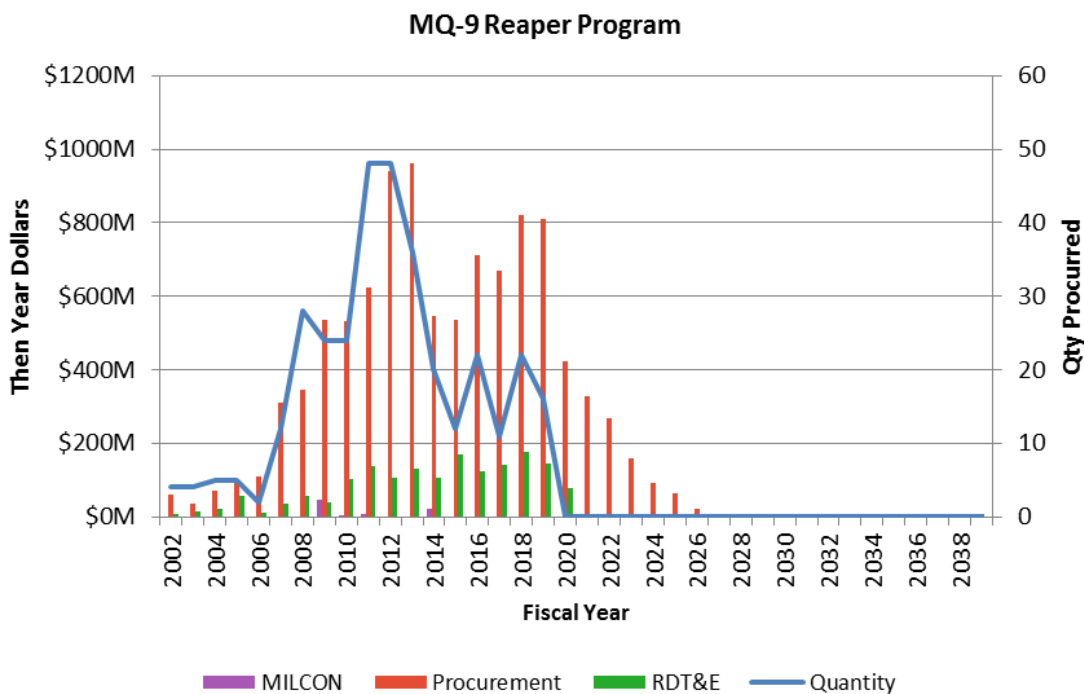


³⁵ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 101–102.

³⁶ Four Triton aircraft were procured with RDT&E funding, but are not in the quantity line.

MQ-9 Reaper Unmanned Aircraft System

The Air Force's MQ-9 Reaper, based on the Service's MQ-1 Predator, is a multirole, medium-altitude unmanned aircraft for surveillance and strike missions in permissive airspace. Each MQ-9 Reaper system consists of four aircraft and the associated control equipment. It can carry laser and GPS-guided bombs and Hellfire missiles. Due to program delays and continued low-rate initial production, the full-rate production decision was converted to an in-process review because more than half the platforms will be procured prior to the full-rate production decision.³⁷ A total of \$6.1 billion has been appropriated through FY 2014 for 263 aircraft, and an additional \$4.3 billion is requested over the FYDP for 83 aircraft. No additional procurements are projected beyond the FYDP, but an additional \$1.5 billion is planned for continued upgrades.³⁸

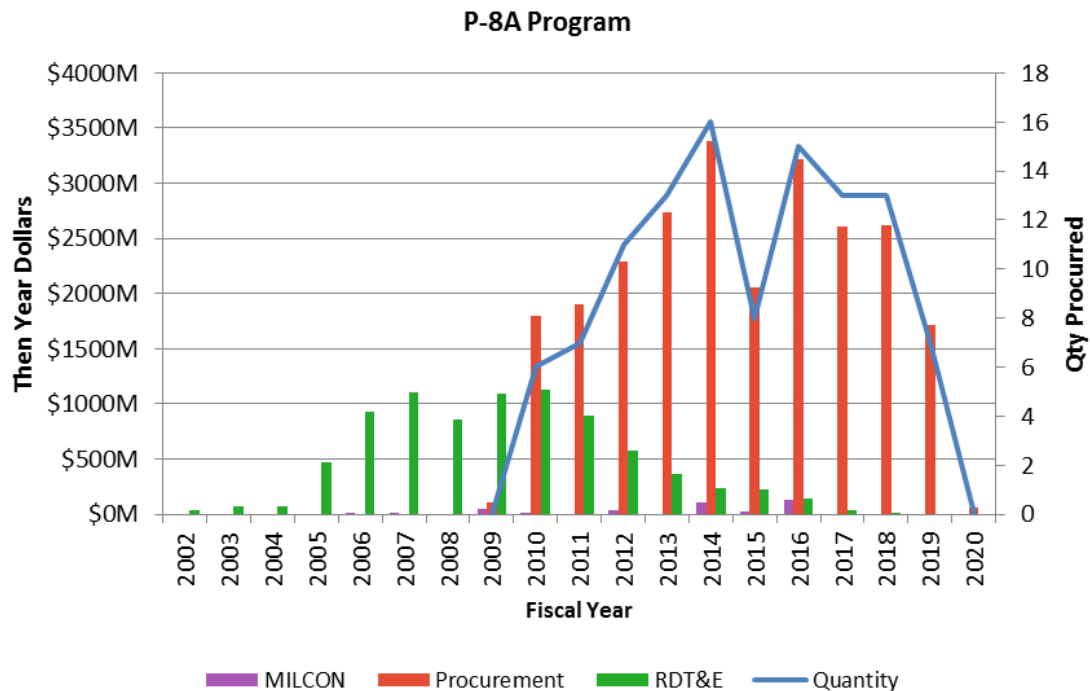


³⁷ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 105–106.

³⁸ Three Reaper aircraft were procured with RDT&E funding, but are not included in the quantity line.

P-8A Poseidon Multi-Mission Maritime Aircraft

The Navy's P-8A Poseidon is being procured to replace the P-3C Orion for antisubmarine warfare, anti-surface warfare, and intelligence, surveillance, and reconnaissance missions. The P-8A is based on the Boeing 737 airframe and is produced in the same production line as commercial 737s.³⁹ In its FY 2015 request, the Navy reduced the planned procurement of aircraft from 70 to 56 over the FYDP. A total of \$20.2 billion has been appropriated through FY 2014 for development and production of the first 53 aircraft, and \$12.8 billion is requested over the FYDP to procure the remaining 56 P-8As. No additional procurements are planned beyond the FYDP, although \$57 million in additional funding is projected.⁴⁰

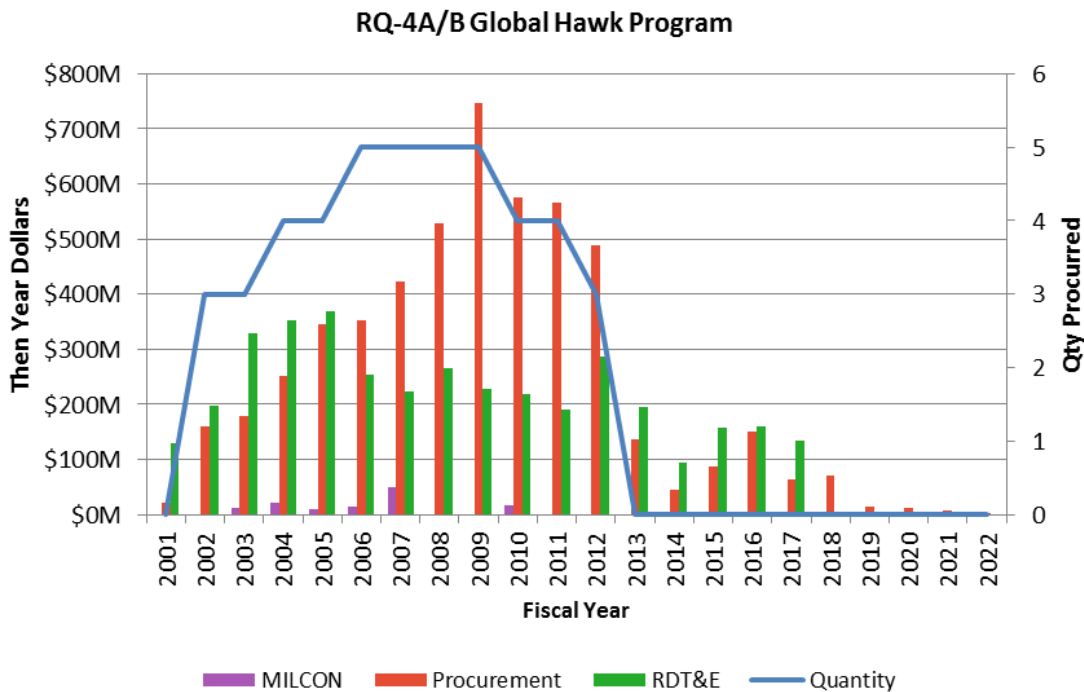


³⁹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_61_P-8ADecember2013SAR.PDF.

⁴⁰ Five P-8A aircraft were procured with RDT&E funding, but are not included in the quantity line.

RQ-4A/B Global Hawk Unmanned Aircraft System (RQ-4A/B Global Hawk)

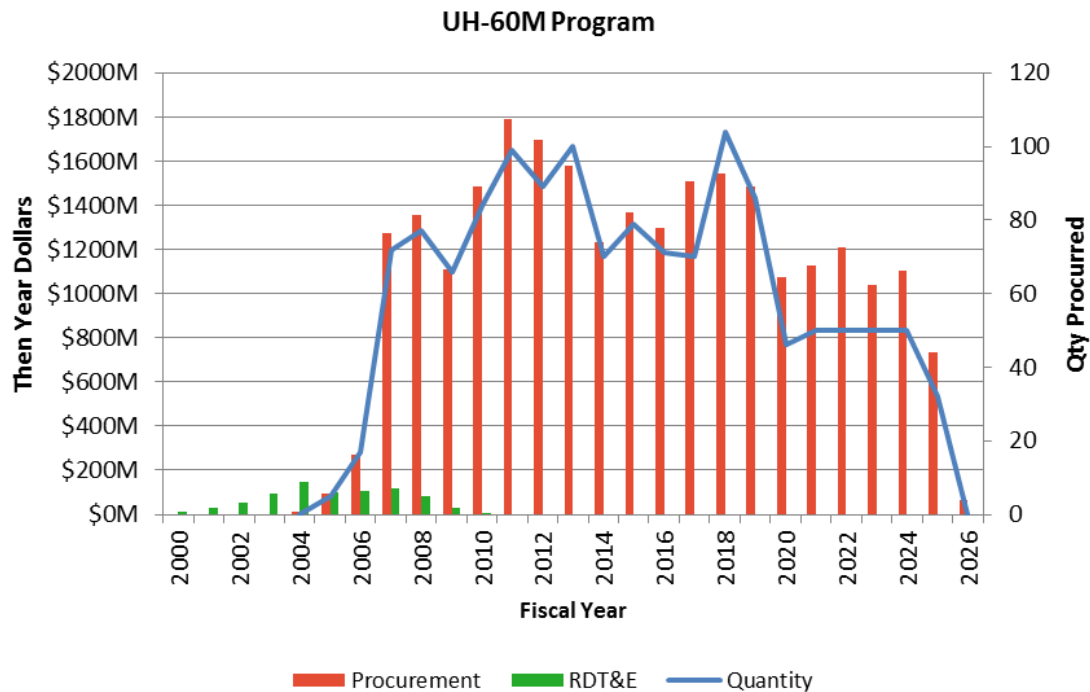
The Air Force's Global Hawk is an unmanned long-endurance high-altitude intelligence, surveillance, and reconnaissance aircraft. The initial RQ-4A model has been retired, and the RQ-4B comes in three configurations. The Block 20 aircraft carry an imagery intelligence payload, the Block 30 aircraft are equipped with both imagery and signals intelligence payloads, and the Block 40 aircraft have advanced air-to-surface radar for wide-area surveillance of fixed and moving targets. Procurement of Global Hawk ended in FY 2013 with a total of 45 aircraft. The Air Force proposed retiring all of the Block 30 aircraft in the FY 2013 budget, nearly half of the fleet, but Congress mandated that the Service maintain them at least through the end of 2014. In the FY 2015 budget, the Air Force plans to keep the Block 30 aircraft and retire the legacy U-2 fleet instead. The Block 40 aircraft are still in operational testing, but two aircraft in this configuration have been delivered for limited operational use.⁴¹ A total of \$8.3 billion has been appropriated through FY 2014, \$0.8 billion is requested for the FYDP, and \$19 million is planned for beyond the FYDP.



⁴¹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 115–116.

UH-60M Black Hawk Helicopter (UH-60M)

The UH-60M Black Hawk is the Army's utility helicopter for air assault, aeromedical evacuation, and general transportation needs. The M variant includes upgraded engines, rotor blades, and instrumentation. Full-rate production began in 2007, and the Army plans to buy a total of 1,367 of the helicopters.⁴² A total of \$12.7 billion has been appropriated through FY 2014 for 679 helicopters, \$7.2 billion is requested for 410 helicopters over the FYDP, and \$6.4 billion is planned for 278 helicopters beyond the FYDP.⁴³

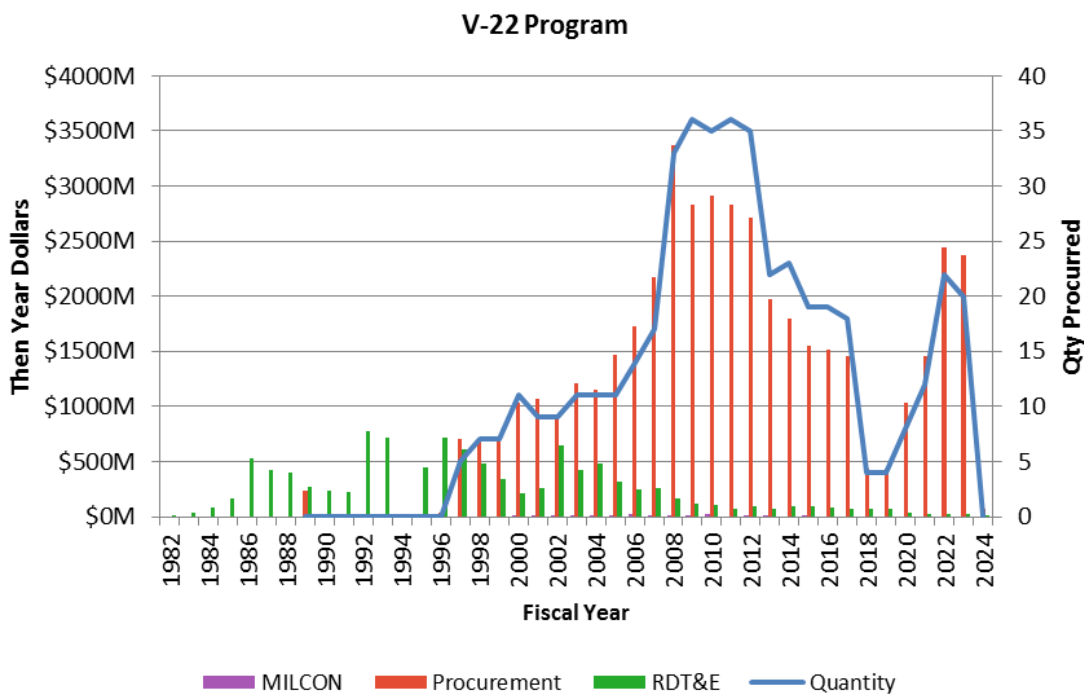


⁴² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_74_UH-60MBlackHawkDecember2013SAR.PDF.

⁴³ Eight UH-60M helicopters were procured with RDT&E funding, but are not in the quantity line.

V-22 Osprey Joint Services Advanced Vertical Lift Aircraft (V-22)

The V-22 is a tilt-rotor helicopter capable of vertical takeoff and landing as well as long-range cruise like that of a turboprop fixed-wing aircraft. The V-22 can fly up to 2,100 nautical miles on a single refueling. The MV-22 variant replaces the Marine Corps' CH-46E and will supplement the Navy's H-60 for transport of troops, equipment, and supplies. The Air Force's CV-22 variant replaces the MH-53 Pave Low for long-range special operations missions. As of December 2013, a total of 237 V-22s have been delivered out of a projected buy of 458.⁴⁴ A total of \$41.7 billion has been appropriated through FY 2014, and \$5.8 billion is requested for the FYDP for the procurement of 64 aircraft. An additional \$7.5 billion is planned for beyond the FYDP to complete the program and procure the final 62 aircraft.⁴⁵

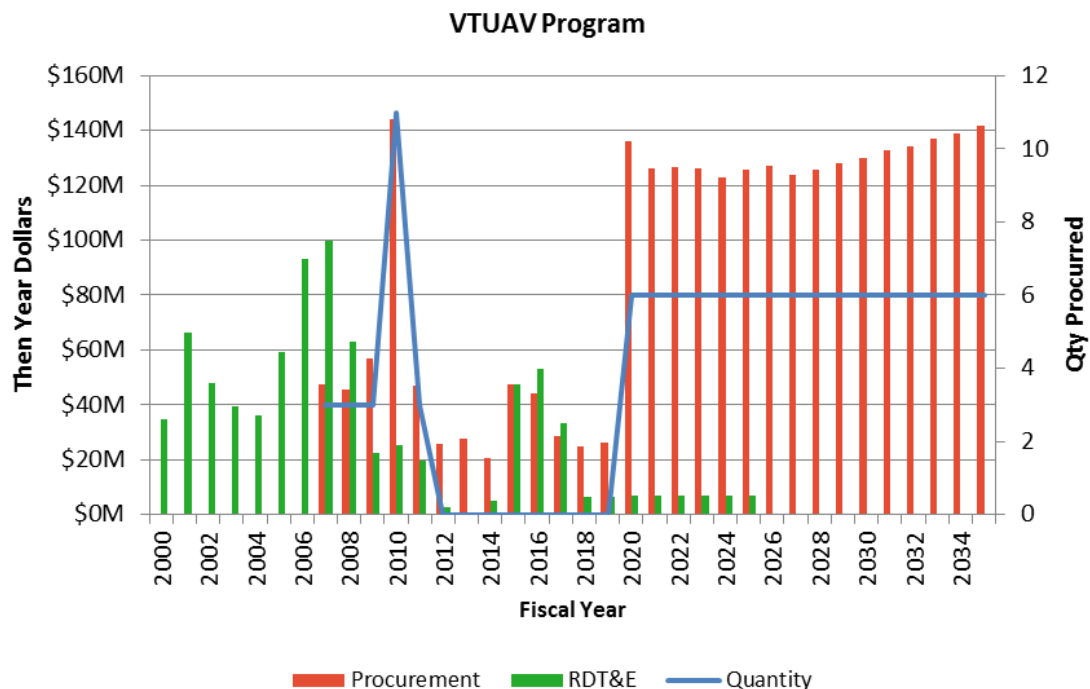


⁴⁴ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_75_V-22December2013SAR.PDF.

⁴⁵ Two V-22 aircraft were procured with RDT&E funding, but are not included in the quantity line.

Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV)

The VTUAV, also known as the MQ-8 Fire Scout, is designed to provide surveillance and targeting information for ground, air, and sea forces. Among other uses, it is intended to support the Littoral Combat Ship surface warfare, mine countermeasures, and anti-submarine warfare mission packages.⁴⁶ The MQ-8B model is smaller and has a maximum endurance of 5.5 hours with a 300-pound payload. The MQ-8C model is larger and has a maximum endurance of 12 hours with a 300-pound payload.⁴⁷ In 2013, the VTUAV program reported a critical Nunn-McCurdy breach because it decided to buy a smaller number of the more expensive (and more capable) MQ-8C model rather than the B model, which resulted in a 52 percent increase in the average procurement unit cost.⁴⁸ A total of \$1.0 billion has been appropriated through FY 2014 for development and procurement of 23 MQ-8Bs, and \$0.3 billion is requested for additional development work over the FYDP. The program plans to begin procuring MQ-8Cs in FY 2020 with a projected cost of \$2.1 billion for 96 aircraft beyond the FYDP.⁴⁹



⁴⁶ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_76_VTUAVDecember2013SAR.PDF.

⁴⁷ Naval Air Systems Command, *MQ-8 Fire Scout*, <http://www.navair.navy.mil/index.cfm?fuseaction=home.display&key=8250AFBA-DF2B-4999-9EF3-0B0E46144D03>.

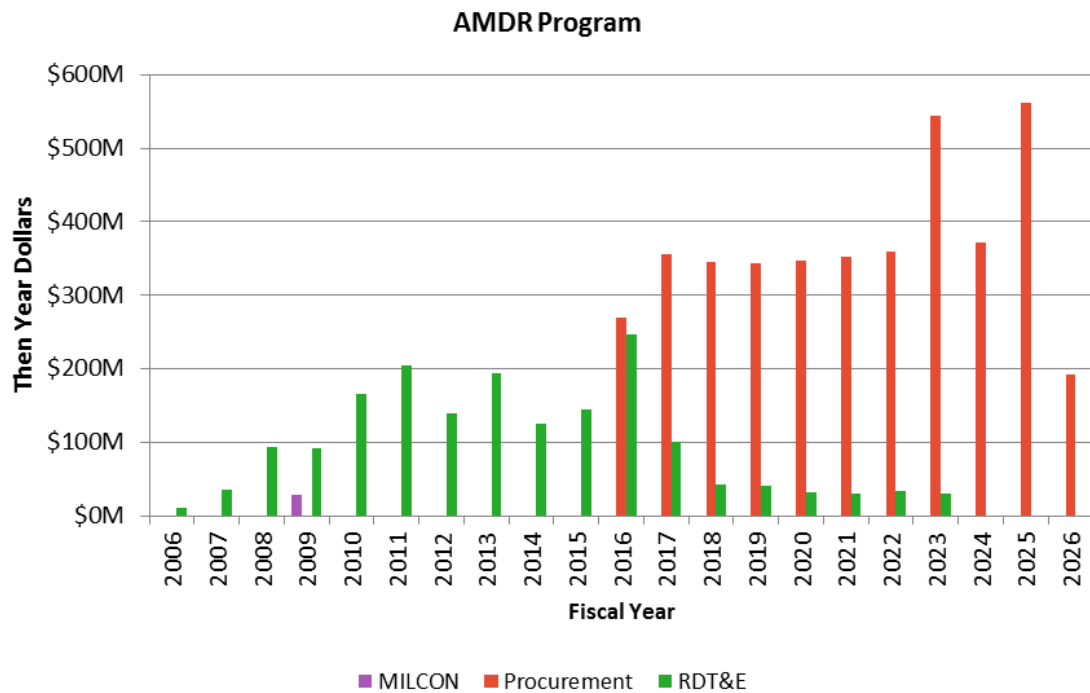
⁴⁸ DoD. *Department of Defense Selected Acquisition Reports (SARs) (as of December 31, 2013)*. <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16644/>.

⁴⁹ Seven VTUAVs were procured with RDT&E funding, but are not reflected in the quantity line.

AIR AND MISSILE DEFENSE

Air and Missile Defense Radar (AMDR)

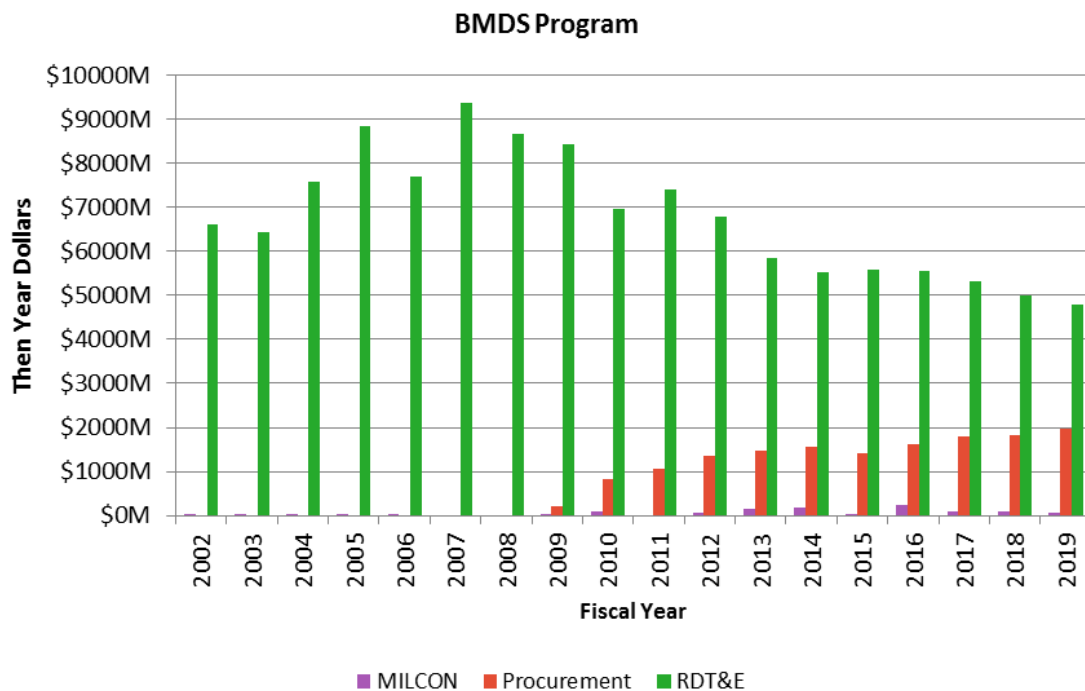
The Navy's AMDR is a next-generation radar for ballistic missile and air defense. The Navy is planning to install a 14-foot variant of the AMDR on the DDG 51 Flight III, which is the maximum size this ship can accommodate. AMDR is designed to be scalable, and a 20-foot or greater radar would be necessary to meet the Navy's desired performance for integrated air and missile defense.⁵⁰ A total of \$1.1 billion has been appropriated through FY 2014 for AMDR. An additional \$1.9 billion is requested over the FYDP, and \$2.9 billion is planned for beyond the FYDP.



⁵⁰ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 55–56.

Ballistic Missile Defense System (BMDS)

BMDS is a defense-wide program, run by the Missile Defense Agency (MDA), designed to develop and deploy a layered BMDS to defend the United States and its deployed forces, allies, and partners from ballistic missile attacks. The BMDS program currently supports ground-based interceptors for homeland defense, forward-based Army-Navy Transportable Radar Surveillance & Control-Series 2 (AN/TPY-2) radars to track ballistic missile launches, Terminal High Altitude Area Defense (THAAD) batteries to protect deployed forces and allies, and Aegis Ballistic Missile Defense (BMD) equipped ships.⁵¹ The program also supports the European Phased Adaptive Approach (EPAA) to protect NATO allies and forward deployed troops. Phase II of the EPAA is scheduled to deploy in 2015, adding an upgraded Aegis BMD weapons system, an Aegis Ashore system in Romania, and the SM-3 Block IB missile to European BMD. EPAA Phase III is scheduled for 2018, which will include additional upgrades to the Aegis system, Aegis Ashore in Poland, and SM-3 Block IIA missiles. The MDA is continuing research into directed energy, a next generation kill vehicle, and advanced discriminating sensors.⁵² A total of \$103 billion has been appropriated through FY 2014 and \$35.4 billion is requested over the FYDP. As has been the case in the past, the SAR does not project any BMDS funding beyond the FYDP, but the program is likely to continue spending at a rate similar to the current FYDP for the foreseeable future.

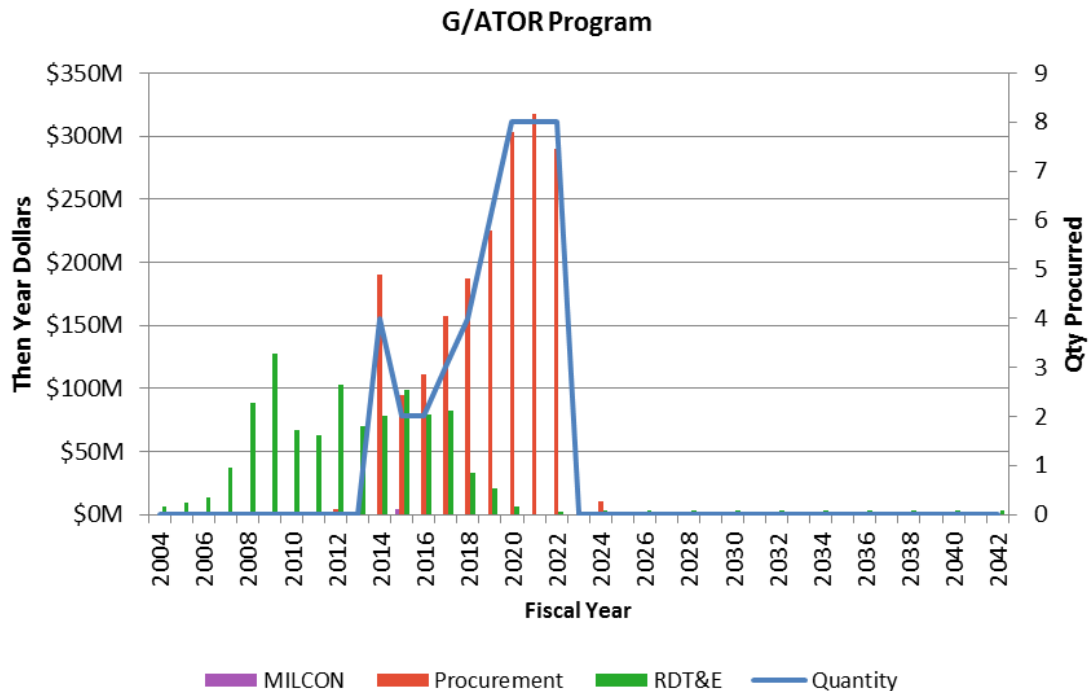


⁵¹ The Aegis Weapon System is a centralized and automated command-and-control system designed to detect and destroy enemy missiles and aircraft. It is based on the AN-SPY-1 radar that can perform search, track, and missile guidance functions for more than 100 targets simultaneously. See United States Navy Fact File. *AEGIS WEAPON SYSTEM*. (Washington, DC: DoD, 2013), http://www.navy.mil/navydata/fact_display.asp?cid=2100&tid=200&ct=2.

⁵² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_12_BMDSDecember2013SAR.PDF.

Ground/Air Task Oriented Radar (G/ATOR)

The Marine Corps' G/ATOR program is an active electronic scanned array “designed to detect cruise missiles, air breathing targets, rockets, mortars, and artillery.” G/ATOR is a block acquisition program with the follow on blocks primarily providing software upgrades.⁵³ A low-rate initial production contract was awarded in March 2014;⁵⁴ however, the program may be delayed as it incorporates software modifications to satisfy the program's reliability requirements.⁵⁵ A total of \$0.9 billion has been appropriated through FY 2014, and \$1.1 billion is requested over the FYDP. The SAR projects that an additional \$1.0 billion will be needed beyond the FYDP.



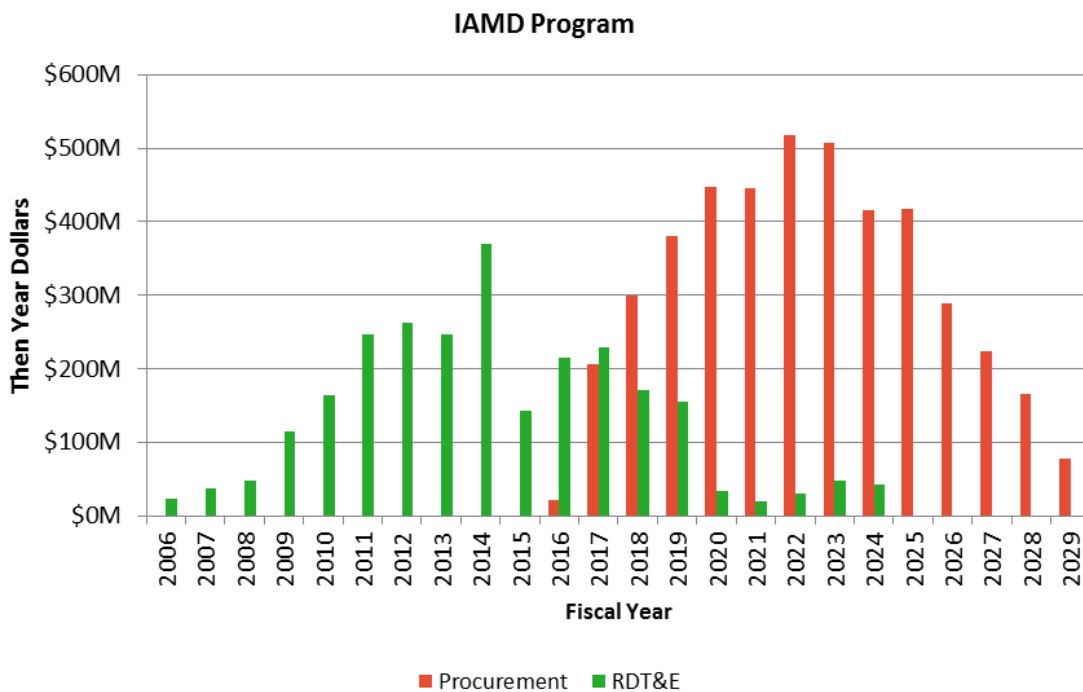
⁵³ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 77–78.

⁵⁴ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_29_G_ATORDecember2013SAR.PDF.

⁵⁵ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 77–78.

Integrated Air and Missile Defense (IAMD)

The Army's IAMD program will network sensors, weapons, and a common command system to protect against air and missile threats. Developmental costs have increased substantially due to increasing demands on the system's software. The integrated fire control network now needs to directly support the Patriot launcher and radar functionality. The program is also attempting to integrate the Warfighter Information Network-Tactical (WIN-T)—a high-speed and high-capacity communications network—which risks increased costs and program delays.⁵⁶ A recently released summary of a DoD audit report on the IAMD program recommends delaying the initial production decision to allow for further testing to demonstrate that the IAMD meets all planned requirements.⁵⁷ A total of \$1.5 billion has been appropriated through FY 2014, \$1.8 billion is requested over the FYDP, and \$3.7 billion is planned for beyond the FYDP.

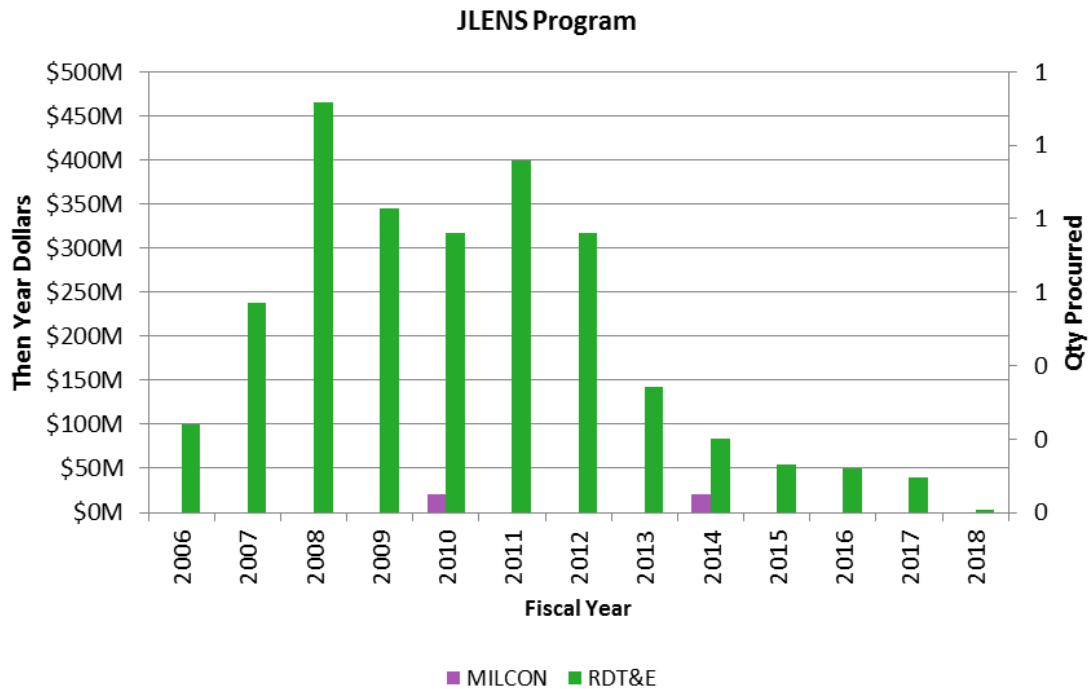


⁵⁶ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 79–80.

⁵⁷ Office of the Inspector General, United States Department of Defense. *Audit Report DODIG-2014-081*. Washington, DC, June 9, 2014, http://www.dodig.mil/pubs/report_summary.cfm?id=5861.

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS):

JLENS is an Army program to develop a tethered aerostat (i.e. a lighter-than-air vehicle, such as a blimp or balloon) that can stay aloft for almost a month, providing continuous over-the-horizon surveillance in all directions. It provides surveillance and fire control data to surface-to-air missile systems and fighter aircraft to protect U.S. and coalition forces from cruise missiles, aircraft, unmanned aerial vehicles, tactical ballistic missiles, rockets, and other mobile surface targets.⁵⁸ The JLENS program has satisfied developmental testing and evaluation requirements and is planning a three-year operational combatant command exercise to demonstrate JLENS capabilities to support homeland defense.⁵⁹ A total of \$2.4 billion has been appropriated through FY 2014 and \$147 million is requested through the end of the program in 2018.⁶⁰



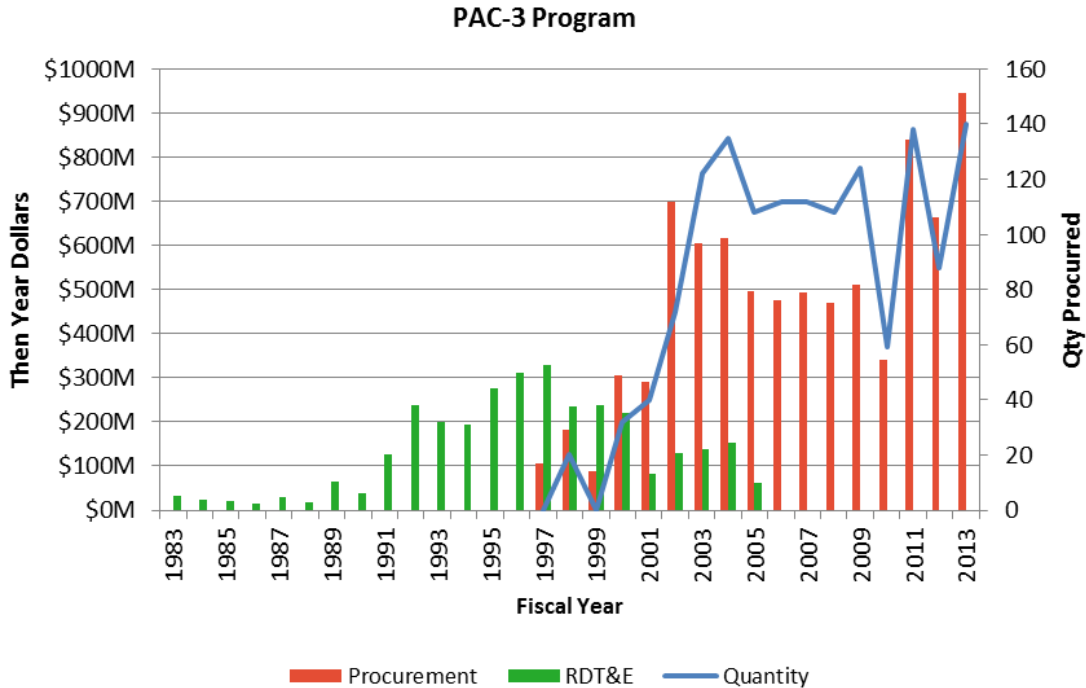
⁵⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_40_JLENSDecember2013SAR.PDF.

⁵⁹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 138.

⁶⁰ The two JLENS aerostats procured through this program were funded through the RDT&E budget.

Patriot Advanced Capability-3 (PAC-3)

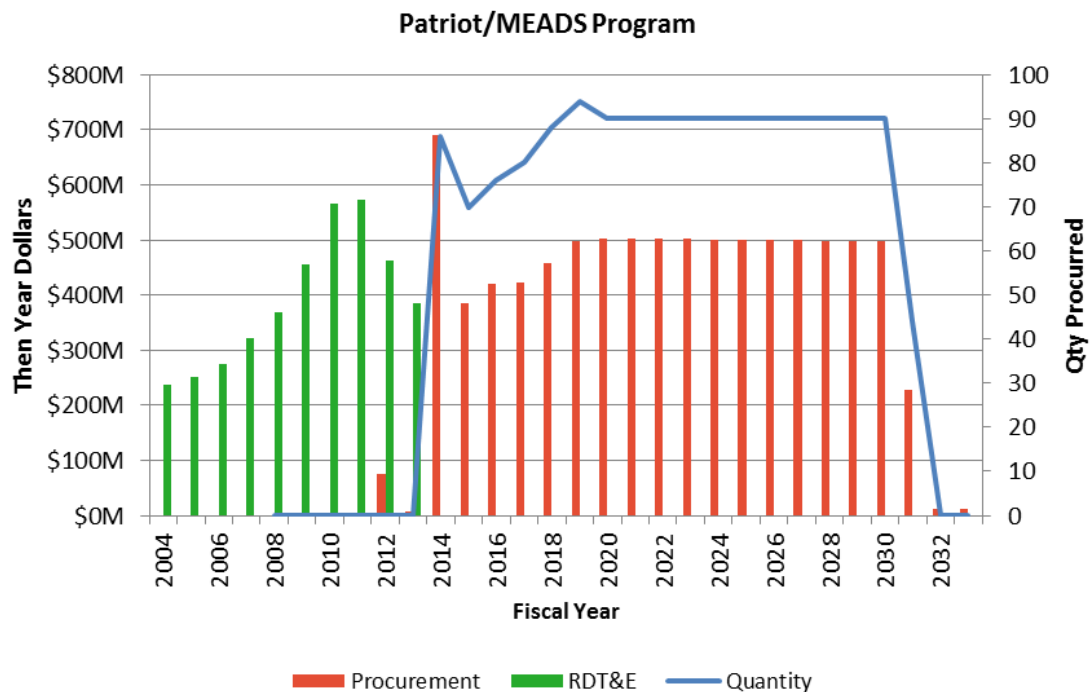
The PAC-3 missile is a high velocity hit-to-kill surface-to-air missile designed to intercept and destroy theater ballistic missiles, cruise missiles, and aircraft. The Patriot system is deployed globally in defense of U.S. and allied forces. It has been sold to the Netherlands, Japan, Germany, the United Arab Emirates, Taiwan, and Kuwait.⁶¹ A total of \$11.3 billion has been appropriated through FY 2014 and nothing has been requested in the FDYP.



⁶¹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_62_PAC-3December2013SAR.PDF.

Patriot/Medium Extended Air Defense System Combined Aggregate Program (Patriot/MEADS CAP)

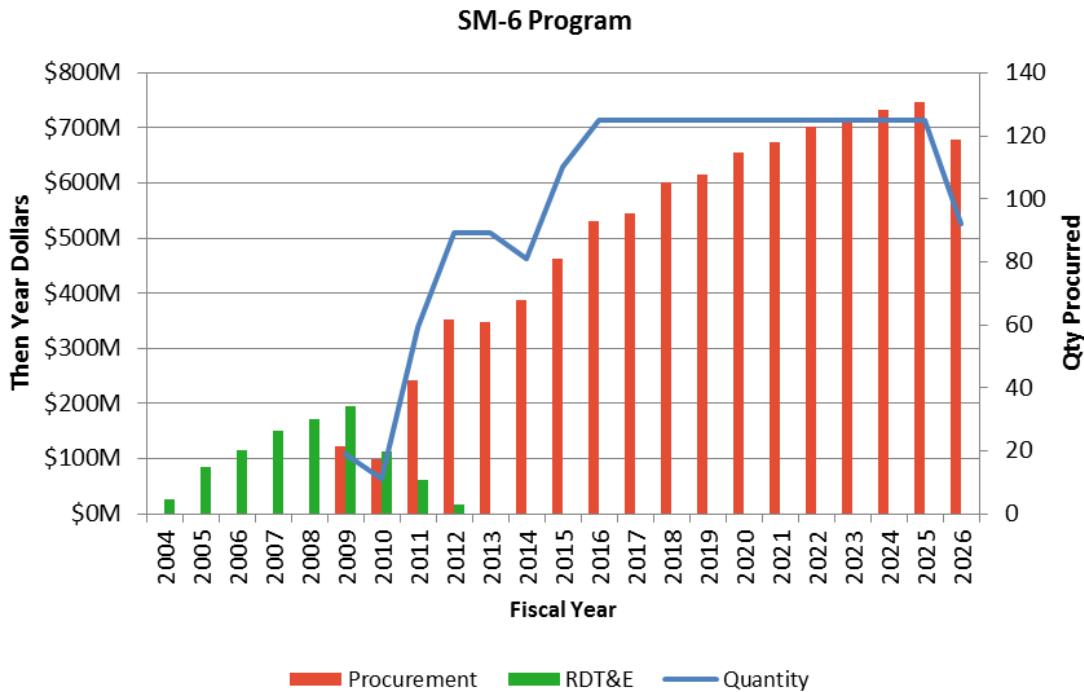
Patriot/MEADS CAP is an international development effort with Germany and Italy to replace the Patriot (United States), Hawk (Germany), and Nike (Italy) air and missile defense systems. The system was intended to improve the capabilities and deployability of the fire control units and upgrade the interceptor missile to be more agile and lethal. The Army had planned to field 16 MEADS battalions by FY 2030, completely replacing existing Patriot units. In 2011, however, the Army decided to end the development program by FY 2014. The Army no longer plans to procure any of the MEADS fire units and instead will only procure the upgraded PAC-3 Missile Segment Enhancement (MSE) missiles.⁶² A total of \$4.7 billion has been appropriated through FY 2014 for the program. An additional \$2.2 billion is requested over the FYDP to procure more than 400 interceptors, and \$5.8 billion is planned for more than 1,000 interceptors beyond the FYDP.



⁶² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_63_Patriot_MEADS_CAPDecember2013SAR.PDF.

Standard Missile-6 (SM-6)

The SM-6 Extended Range Active Missile (ERAM) is a sea-based surface-to-air missile designed to intercept aircraft and cruise missiles. It is deployable from AEGIS cruisers and destroyers. The SM-6 ERAM is a multi-block program to keep pace with evolving threats. The SM-6 ERAM Block I achieved initial operating capability in November 2013.⁶³ A total of \$2.5 billion has been appropriated through FY 2014, \$2.8 billion is requested for the FYDP, and \$4.9 billion is planned for beyond the FYDP.

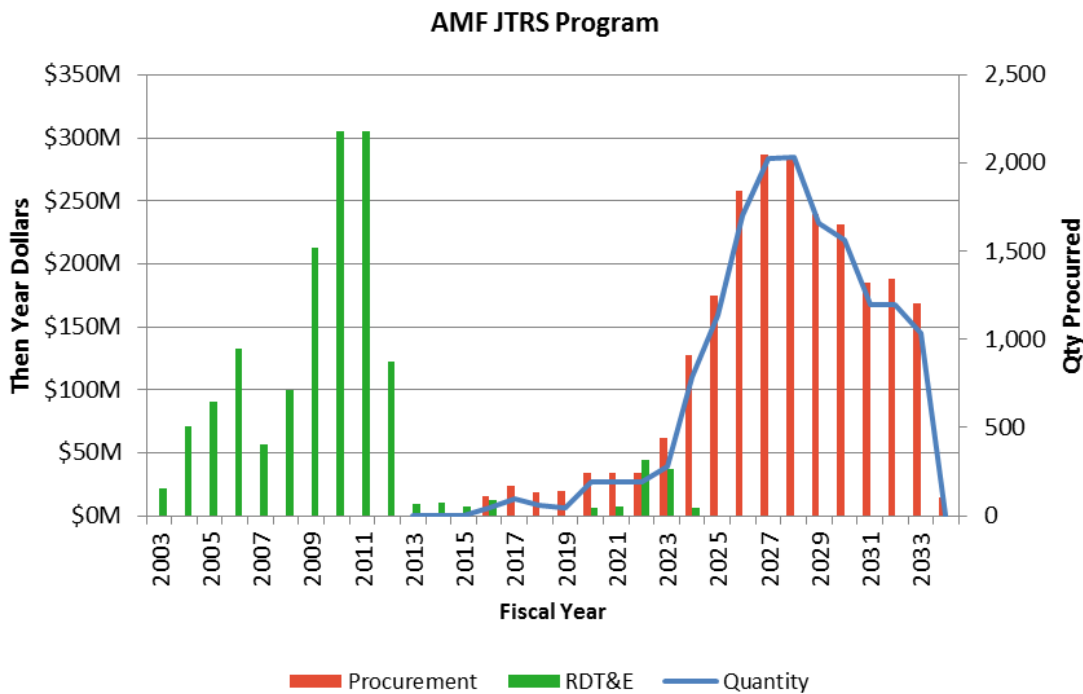


⁶³ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_69_SM-6December2013SAR.PDF.

COMMUNICATIONS AND ELECTRONICS

Airborne and Maritime/Fixed Station Joint Tactical Radio System (AMF JTRS)

After years of development work, the AMF JTRS program was restructured in 2012 to adopt a non-development acquisition approach. The program now plans to acquire two industry-developed software-defined radios, the Small Airborne Link 16 Terminal (SALT) and the Small Airborne Networking Radio (SANR), for integration into Army rotary wing and unmanned aerial systems to improve interoperability and communications capabilities.⁶⁴ A total of \$1.4 billion has been appropriated through FY 2014 and \$97 million is requested over the FYDP. An additional \$2.4 billion is planned for beyond the FDYP to procure more than 15,000 radios.⁶⁵

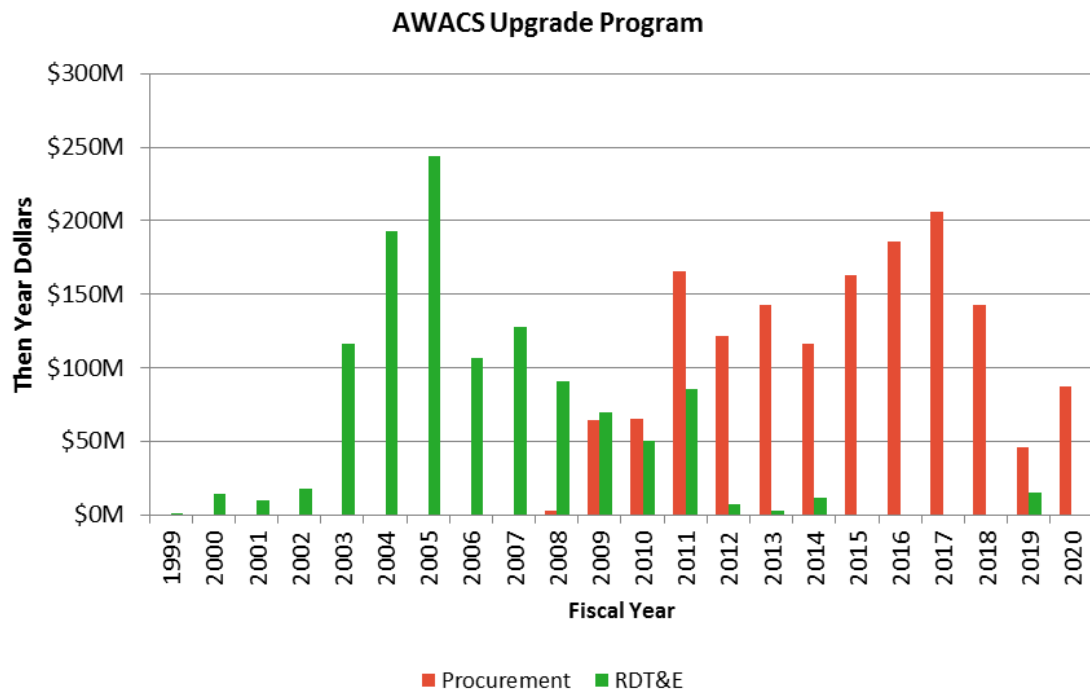


⁶⁴ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 127.

⁶⁵ 212 additional units were procured with RDT&E funding, but are not included in the quantity line.

Airborne Warning and Control System Block 40/45 Upgrade

The AWACS system is used for airborne theater battle management, wide-area surveillance, and command and control. The Block 40/45 upgrade improves tracking and identification capabilities, system reliability, and the user interface.⁶⁶ In 2013, the Block 40/45 upgrade program reported a significant Nunn-McCurdy breach primarily due to reducing the quantity of aircraft being upgraded from 31 to 24.⁶⁷ A total of \$1.8 billion has been appropriated through FY 2014 to upgrade 13 aircraft, \$0.8 billion is requested over the FYDP to upgrade 11 aircraft, and \$87 million is planned for beyond the FYDP to complete the program.

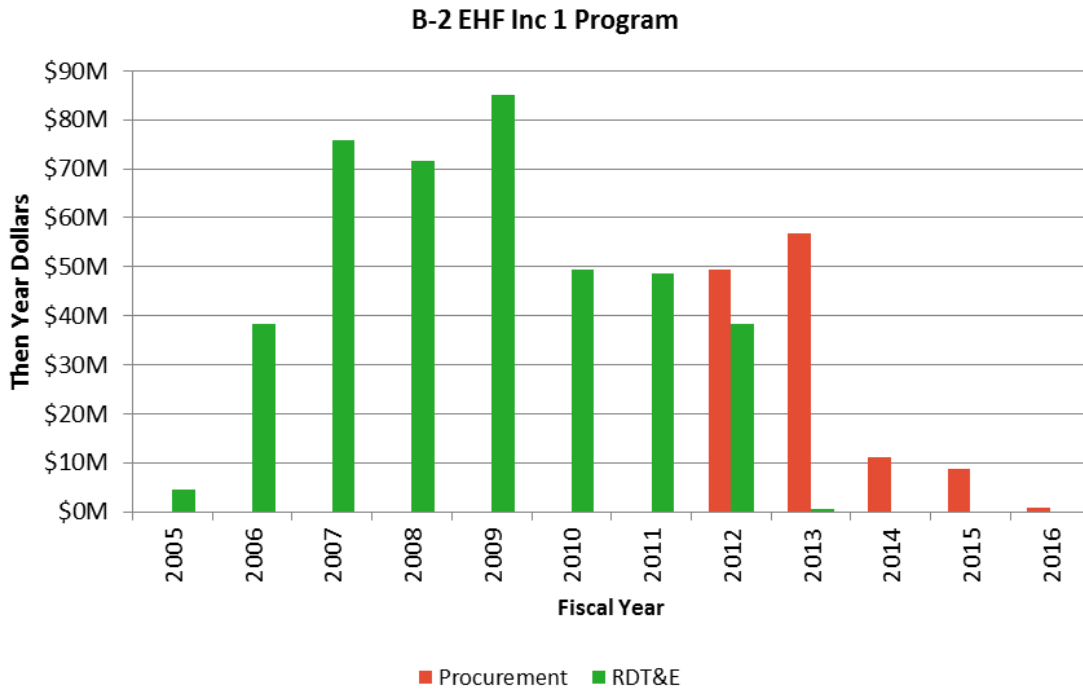


⁶⁶ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_09_AWACS_Blk_40_45_UpgradeDecember2013SAR.PDF.

⁶⁷ DoD. *Department of Defense Selected Acquisition Reports (SARs) (as of December 31, 2013)*. <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16644/>.

B-2 Extremely High Frequency (EHF) SATCOM and Computer Increment 1

The B-2 EHF program will upgrade the B-2 such that is compatible with the future AEHF satellite constellation. Increment 1 installs an upgraded protected satellite communications terminal compatible with both the AEHF constellation and the legacy MILSTAR constellation. It also provides the necessary fiber optic structure and processing power to support future B-2 upgrades.⁶⁸ A total of \$0.5 billion has been appropriated through FY 2014, and an additional \$10 million is requested through program completion in FY 2017.⁶⁹

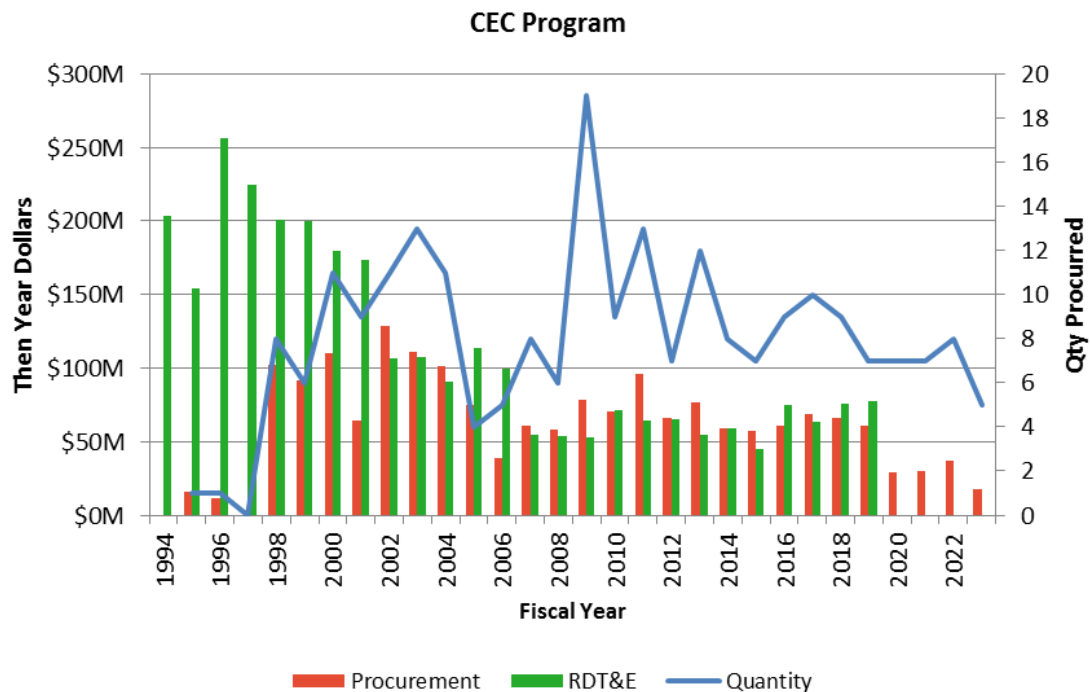


⁶⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_10_B-2EHF_Inc_1December2013SAR.PDF.

⁶⁹ Funding for 4 of the 20 planned upgrades were paid for through RDT&E funding. That expenditure is reflected in the graph, but the quantity is not.

Cooperative Engagement Capability (CEC)

The CEC is a Navy-led program to increase overall naval air defense capabilities by integrating sensors and weapons into a single data distribution network to improve situational awareness and increase intercept ranges. The CEC is developing a shipboard, airborne, Marine Corps ground mobile, Army JLENS, and foreign military sales variants. The shipboard variant is in full-rate production and the airborne variant is in low-rate initial production.⁷⁰ A total of \$4.0 billion has been appropriated through FY 2014, \$0.7 billion is requested over the FYDP, and \$114 million is planned for beyond the FYDP.⁷¹

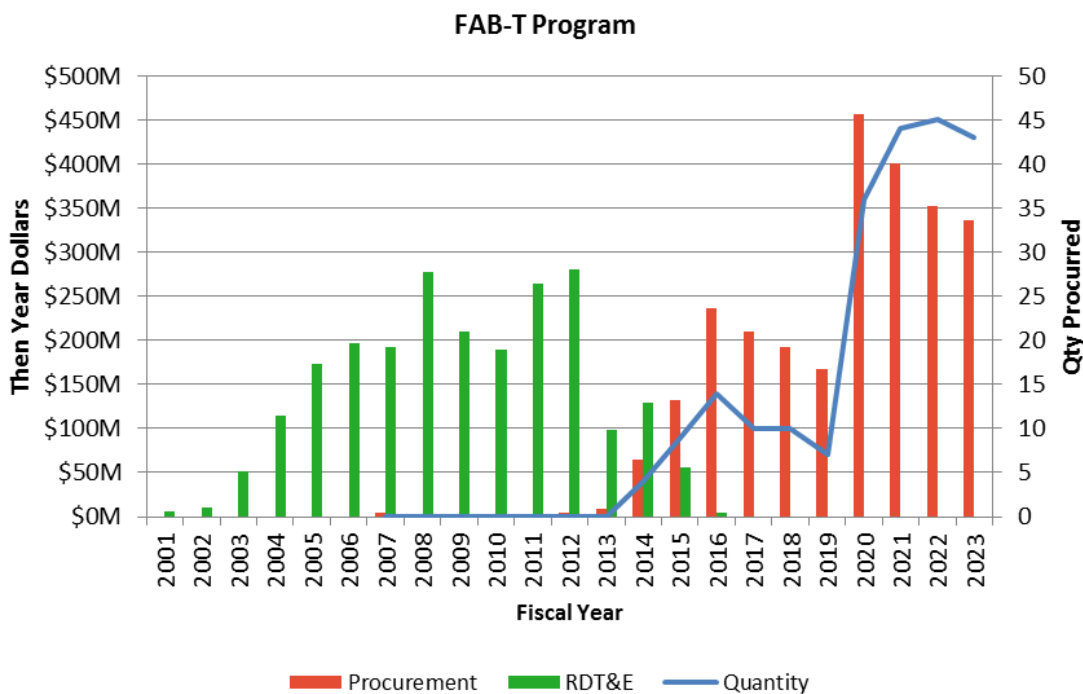


⁷⁰ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_15_CECDecember2013SAR.PDF.

⁷¹ Thirty units were procured with RDT&E funding, but are not included in the quantity line.

Family of Beyond Line-of-Sight Terminals (FAB-T)

The Air Force's FAB-T program is developing protected satellite communications terminals for airborne and ground-based users to replace legacy terminals. FAB-T provides voice and data communications for conventional and nuclear forces using the new capabilities, improved data rates, and protection provided by the AEHF constellation of satellites. Due to cost growth and schedule delays, the Air Force began looking for an alternate contractor to complete the program.⁷² In mid-2014, the Air Force awarded the contract to Raytheon to produce the command post terminals.⁷³ A total of \$2.3 billion has been appropriated through FY 2014 for the program, \$1.0 billion is requested over the FYDP, and \$1.5 billion is planned for beyond the FYDP for the procurement of a total of 259 terminals.⁷⁴



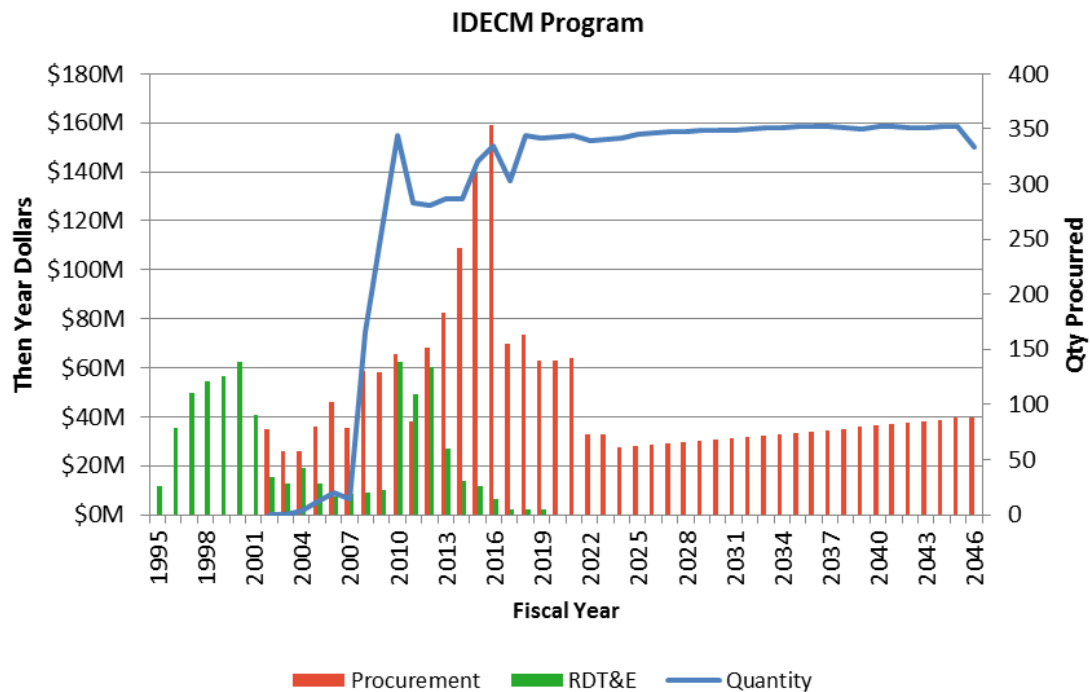
⁷² GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 71–72.

⁷³ Joey Cheng, "Air Force switches contractors with \$298M award for FAB-T satellite terminals," *Defense Systems*, June 4, 2014, <http://defensesystems.com/articles/2014/06/04/air-force-fab-t-contract-raytheon.aspx>.

⁷⁴ Thirty-seven units were procured with RDT&E funding, but are not included in the quantity line.

Integrated Defensive Electronic Countermeasures (IDECM)

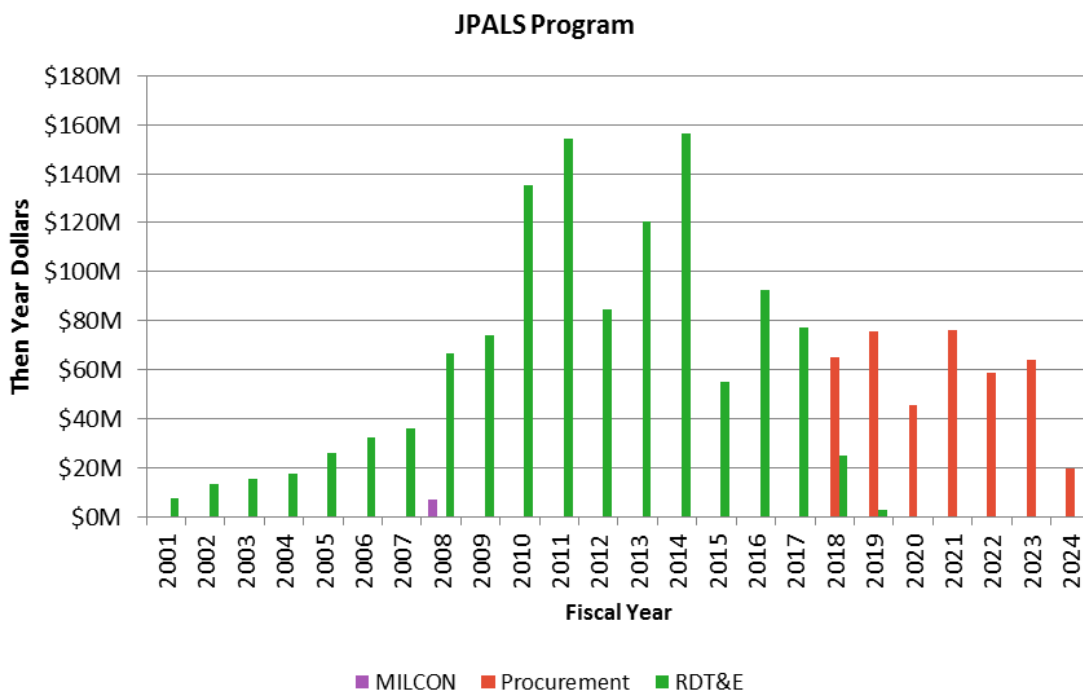
IDECM is a Navy program to design a radio frequency electronic countermeasure suite for the F/A-18 aircraft. The system is designed to receive and process signals from enemy radars and disrupt these signals using on-board and off-board jammers. Four IDECM variants are being developed with slightly different capabilities. The first three are only compatible with F/A-18E/F aircraft and the fourth variant is compatible with F/A-18C-F aircraft.⁷⁵ A total of \$1.3 billion has been appropriated through FY 2014, \$0.5 billion is requested over the FYDP, and \$1.0 billion is planned for beyond the FYDP.



⁷⁵ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_37_IDECMDecember2013SAR.PDF.

Joint Precision Approach and Landing System (JPALS)

JPALS is a Navy program to develop a GPS-based aircraft landing system to replace the current radar-based systems. Increment 1A is the ship-based system and increment 1B will integrate JPALS with sea-based aircraft.⁷⁶ In 2013, the program reported a critical Nunn-McCurdy breach due in part to the elimination of ten training systems.⁷⁷ As of March 2014, the JPALS program is continuing developmental testing and is scheduled to begin operational testing in 2016. The low-rate initial production decision was scheduled for November 2013, but was canceled without naming a new future date. A new date will be scheduled once the Navy has secured sufficient funding for the program.⁷⁸ A total of \$0.9 billion has been appropriated through FY 2014 and \$0.4 billion is requested over the FYDP, and \$0.3 billion is planned for beyond the FYDP.⁷⁹



⁷⁶ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 85–86.

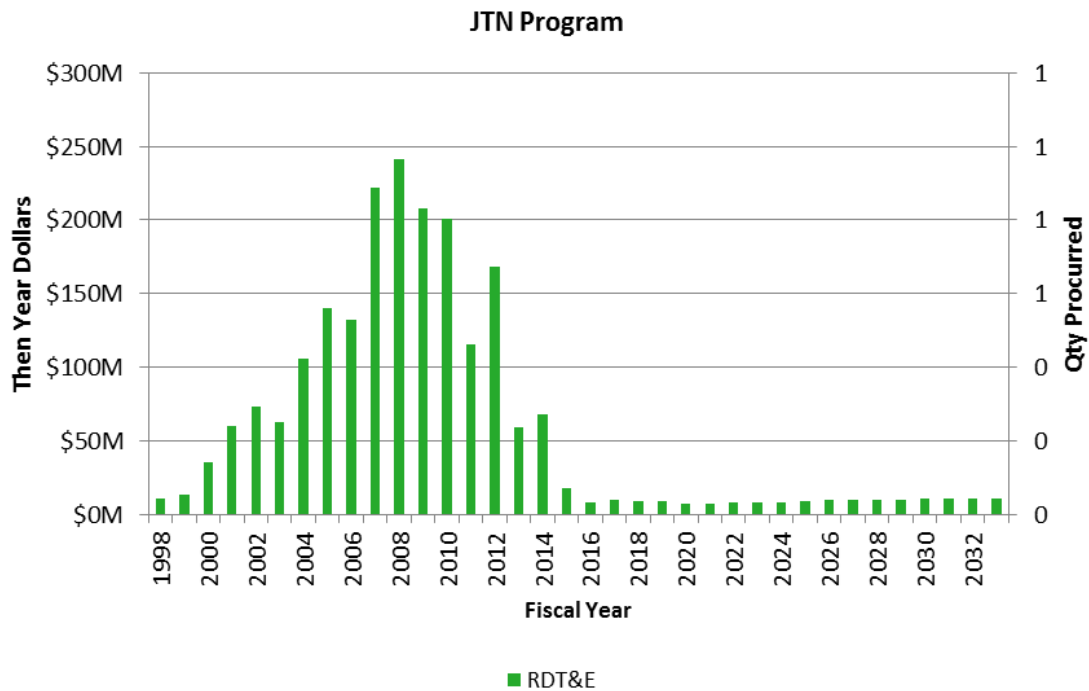
⁷⁷ DoD, *Department of Defense Selected Acquisition Reports (SARs) (as of December 31, 2013)*. <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16644/>.

⁷⁸ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 85–86.

⁷⁹ Ten systems were procured with RDT&E funding, but are not included in the quantity line.

Joint Tactical Networks (JTN)

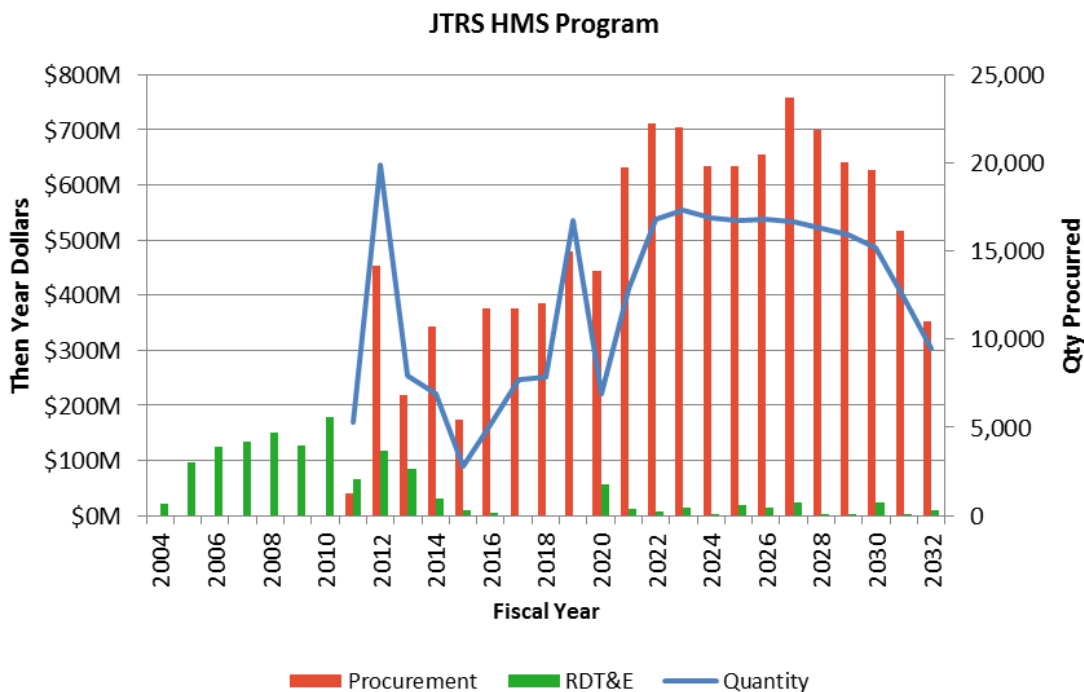
This Army-led program will develop, maintain, and provide network management for software-defined waveforms operating on a variety of software-defined radio platforms. This allows DoD to procure radios from different contractors while maintaining interoperability, thus fostering competition between radio manufacturers. The soldier radio waveform, wideband networking waveform, mobile user objective system waveform, link-16 software defined waveform, and joint enterprise network manager have all completed formal qualification testing under this program.⁸⁰ A total of \$1.9 billion has been appropriated through FY 2014, \$54 million is requested over the FYDP, and \$128 million is planned for beyond the FYDP.



⁸⁰ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_44_JTNDecember2013SAR.PDF.

Joint Tactical Radio System Handheld, Manpack, and Small Form Fit Radios (JTRS HMS)

The JTRS HMS is an Army program to procure a family of software-defined radios for the Army, Navy, Marine Corps, Air Force, and Special Operations Command.⁸¹ In addition to creating secure self-forming, ad hoc, voice and data networks, the JTRS HMS allows leaders at any tactical level to track the position of individual soldiers using the radio.⁸² In 2013, the JTRS HMS program had a significant Nunn-McCurdy breach due to a transition from a single vendor to multiple vendors per radio as well as assuming vehicle integration requirements not previously identified as a responsibility of the program.⁸³ Additionally, the Army's latest Network Integration Evaluation found that the manpack version had significant weight and heat issues and recommended only fielding the mounted version until those issues are resolved.⁸⁴ A total of \$2.2 billion has been appropriated through FY 2014, \$1.8 billion is requested over the FYDP, and \$8.2 billion is planned for beyond the FYDP for a total procurement of more than 270,000 radios.⁸⁵



⁸¹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_45_JTRSHMSDecember2013SAR.PDF.

⁸² Defense Industry Daily, "Soldier Battle JTRS: The HMS Radio Set," June 18, 2014, <http://www.defenseindustrydaily.com/soldier-battle-jtrs-the-hms-radio-set-07536/>.

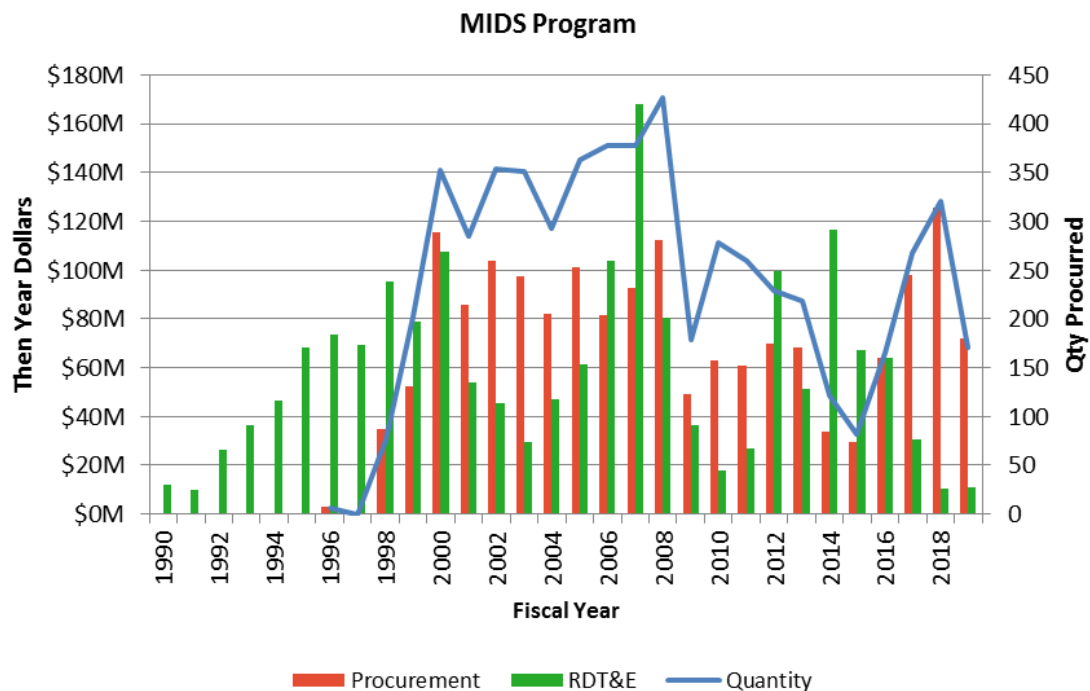
⁸³ DoD. *Department of Defense Selected Acquisition Reports (SARs) (as of December 31, 2013)*. <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16644/>.

⁸⁴ Inside the Army, "Army NIE Report Calls for Changes to JTRS Manpack Requirements," July 29, 2014, <http://insidedefense.com/Inside-the-Army/Inside-the-Army-07/28/2014/army-nie-report-calls-for-changes-to-jtrs-manpack-requirements/menu-id-78.html>.

⁸⁵ Some 833 radios were procured with RDT&E funding, but are not included in the quantity line.

Multifunctional Information Distribution System (MIDS)

The MIDS program is a multinational (U.S., France, Germany, Italy, and Spain) program to develop lightweight tactical radios for U.S. and allied aircraft, ships, and ground sites. The Navy is leading the U.S. portion of the program. The MIDS Joint Tactical Radio System (MIDS-JTRS) is intended for U.S. military use and provides additional capabilities over the MIDS variant developed by international partners. Both terminals are in production, and the MIDS-JTRS has been approved for sale to Australia, Canada, the United Kingdom, and New Zealand.⁸⁶ A total of \$2.9 billion has been appropriated through FY 2014 and \$0.6 billion is requested over the FYDP for a total procurement of 5,756 radios.⁸⁷

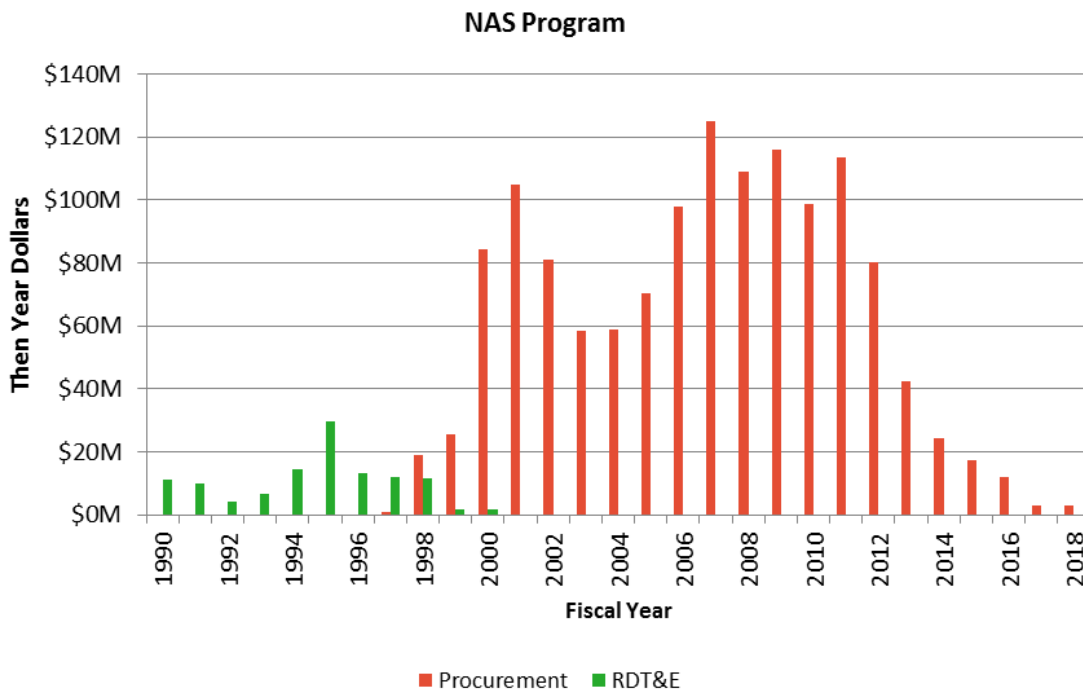


⁸⁶ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_54_MIDSDecember2013SAR.PDF.

⁸⁷ 537 MIDS radios were procured with RDT&E funding, but are not included in the quantity line.

National Airspace System (NAS)

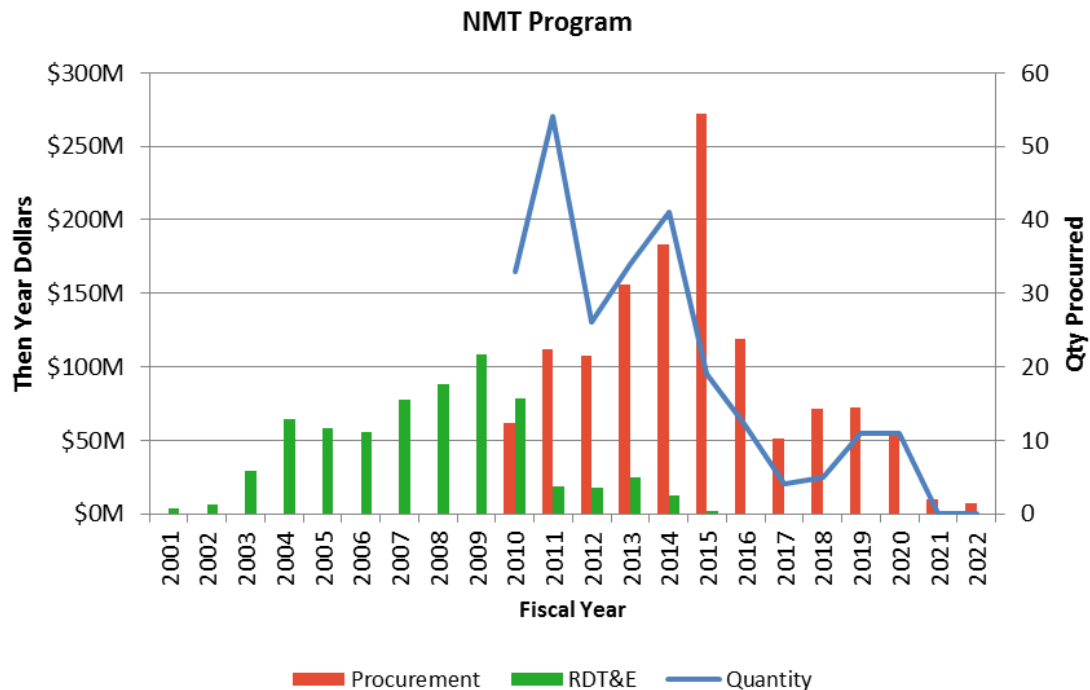
The NAS program includes the Digital Airport Surveillance Radar (DASR), the DoD Advanced Automation System (DAAS), and the Voice Communication Switching System (VCSS) as part of an overall effort to modernize DoD radar approach control facilities in parallel with Federal Aviation Administration (FAA) modernization activities. NAS is a non-developmental acquisition program, and the program is on track to finish procurement in 2018.⁸⁸ A total of \$1.4 billion has been appropriated through FY 2014 and \$35 million is requested for the duration of the program, which is projected to end in 2018.



⁸⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_59_NASDecember2013SAR.PDF.

Navy Multiband Terminal (NMT)

The NMT is a multiband SATCOM terminal for naval forces. The NMT will be capable of communicating using the DSCS, WGS, Milstar, and AEHF satellite constellations. The program is in full-rate production and is preparing for a follow-on operational test late in FY 2014.⁸⁹ A total of \$1.3 billion has been appropriated through FY 2014, \$0.6 billion is requested over the FYDP, and \$73 million is planned for beyond the FYDP.⁹⁰

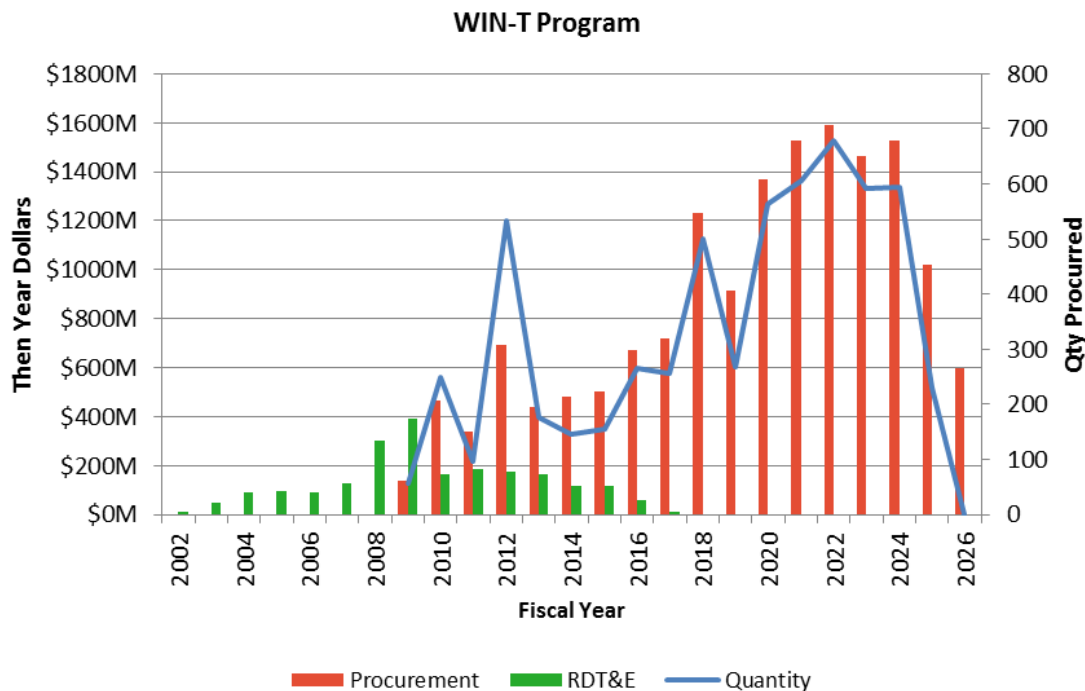


⁸⁹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_60_NMTDecember2013SAR.PDF.

⁹⁰ Twenty-eight NMT terminals were procured with RDT&E funding, but are not reflected in the quantity line.

Warfighter Information Network-Tactical (WIN-T)

The WIN-T program is the Army's high-speed and high-capacity communications network to connect units with higher levels of command. The WIN-T program was restructured into multiple increments as a result of a 2007 critical Nunn-McCurdy breach. WIN-T Increment 2 did not demonstrate required performance and reliability in operational testing so the full-rate production decision has been delayed until an additional operational test is completed in late 2014. As of March 2014, the WIN-T Increment 3 program is awaiting a final program assessment following a critical design review and restructuring.⁹¹ The current program of record in the SAR includes only Increments 2 and 3, with a planned procurement of 5,267 and 699 of each, respectively. A total of \$4.5 billion has been appropriated through FY 2014, \$4.2 billion is requested for the FYDP, and \$9.1 billion is planned for beyond the FYDP.⁹²



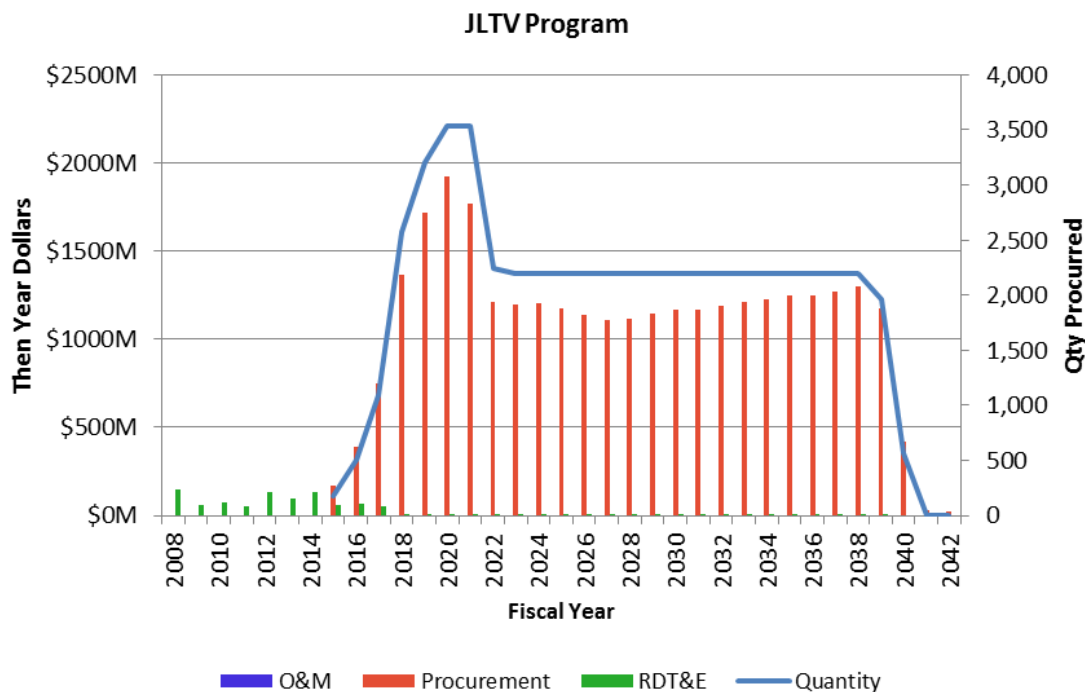
⁹¹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 123–126.

⁹² Fifty-six WIN-T Increment 2 units were procured with RDT&E funding, but are not included in the quantity line.

GROUND SYSTEMS

Joint Light Tactical Vehicle (JLTV)

This Army led program is intended to replace part of the fleet of High Mobility Multipurpose Wheeled Vehicles (HMMWVs) used by the Army and Marine Corps. The JLTV will provide better protection for passengers and increased payload capacity than the up-armored HMMWV. It will be produced in a two-seat and four-seat variant with the two-seat variant supporting a higher payload capacity of 5,100 pounds versus 3,500 pounds for the four-seat variant. Currently, three manufacturers have been contracted to build 22 prototype vehicles each for testing. A sole manufacturer will be determined at the award of a low-rate initial production contract in 2015.⁹³ A total of \$0.7 billion has been appropriated through FY 2014, \$4.6 billion is requested over the FYDP, and \$25.8 billion is planned for beyond the FYDP for a total projected buy of 54,599 vehicles through FY 2040.⁹⁴

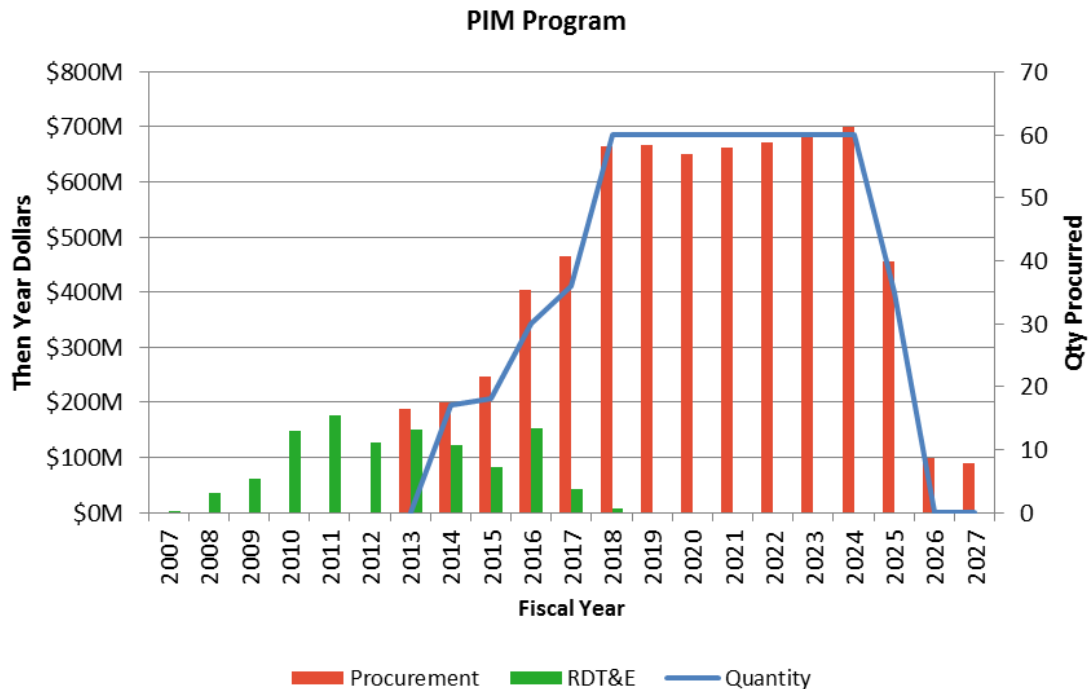


⁹³ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_41_JLTVDecember2013SAR.PDF.

⁹⁴ 131 vehicles were procured with RDT&E funding, but are not included in the quantity line.

Paladin Integrated Management (PIM)

The Army's PIM program is producing two new ground vehicles—a self-propelled 155mm howitzer and a tracked ammunition carrier to replace the current M109A6 Paladin and M992A2 ammunition carrier. The new vehicles are intended to provide improved protection and sustainability over the current Paladin utilizing a new hull, a modernized electrical system, and modified versions of the power train, suspension, and tracks used on the Bradley Infantry Fighting Vehicle. The Army approved the program for low-rate initial production in October 2013, and the first production vehicle is scheduled for delivery in March 2015. Due to insufficient orders, the current contractor for the engine and transmission might shut down, which could increase costs for the program.⁹⁵ A total of \$1.2 billion has been appropriated through FY 2014 for development, testing, and the initial procurement of 17 vehicles. An additional \$2.7 billion is requested over the FYDP for 204 vehicles, and \$4.0 billion is planned for beyond the FYDP to procure another 335 vehicles.⁹⁶



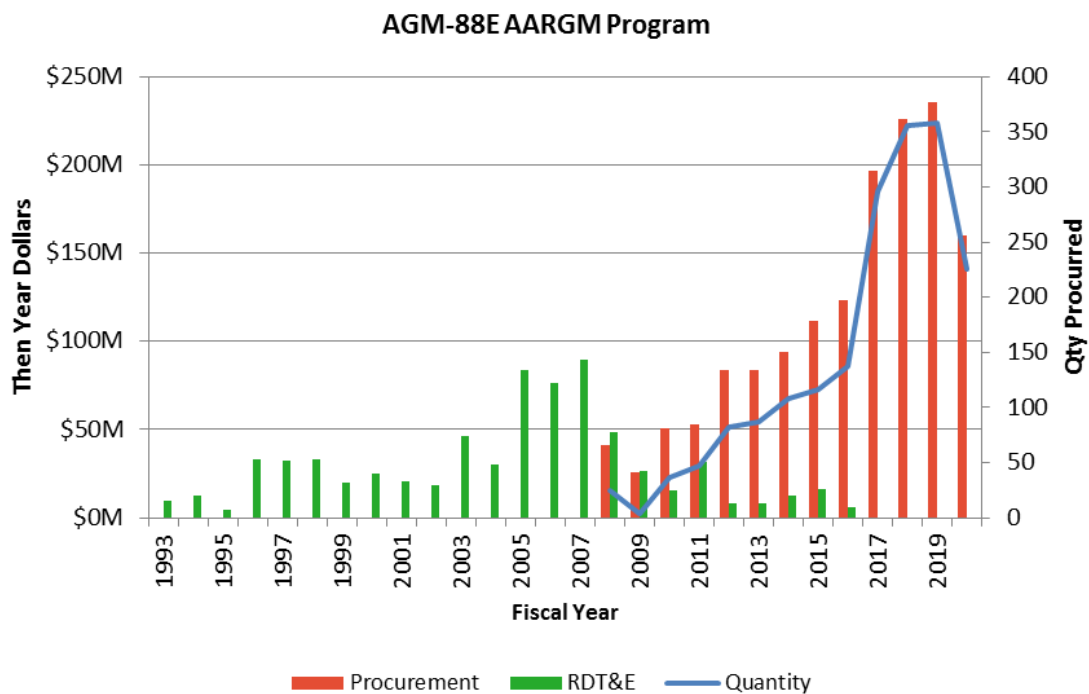
⁹⁵ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 111–112.

⁹⁶ Two PIM systems were procured with RDT&E funding, but are not included in the quantity line.

MISSILES AND MUNITIONS

AGM-88E Advanced Anti-Radiation Guided Missile (AGM-88E AARGM)

The AGM-88E is an air-to-surface missile for targeting enemy air defenses. The AARGM program upgrades the guidance and control mechanisms of the existing AGM-88 High Speed Anti-Radiation Missile (HARM) propulsion and warhead sections. The AARGM can also transmit weapon impact assessment data via satellite. The AARGM will be compatible with the F/A-18C/D/E/F, EA-6B, EA-18G, F-16C/J, and F-35 (external carriage).⁹⁷ The program plans to procure 1,879 missiles through FY 2020. A total of \$1.1 billion has been appropriated through FY 2014, \$0.9 billion is requested over the FYDP, and \$0.2 billion is planned for beyond the FYDP.⁹⁸

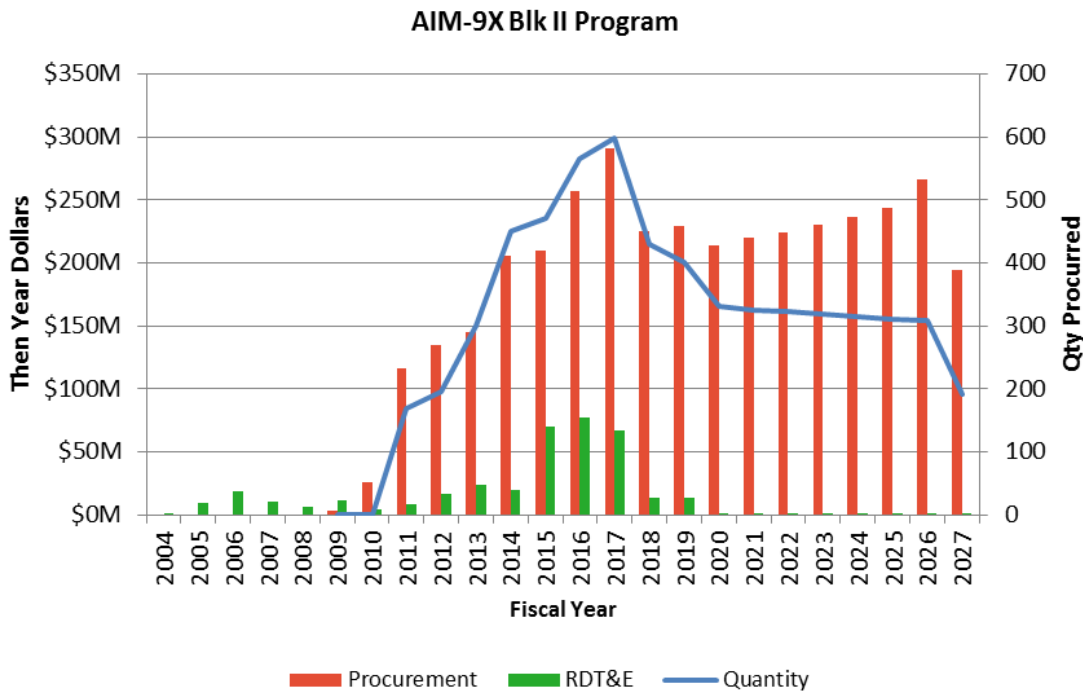


⁹⁷ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_02_AGM-88E_AARGM_December2013SAR.PDF.

⁹⁸ Forty AGM-88E AARGM missiles were procured with RDT&E funding, but are not included in the quantity line.

AIM-9X Block II Air-to-Air Missile

The AIM-9X Block II is a Navy-led program to acquire short-range air-to-air missiles for the F-15, F-16, F-18, F-22A, and F-35 aircraft. Block II includes hardware and software upgrades to improve the range from which the missile can engage and discriminate among targets. The most significant upgrade allows the Block II missiles to engage targets its seeker can't see at launch using targeting data from the launching fighter. Additionally, the range upgrades to the Block II provide some beyond-visual-range capabilities.⁹⁹ The Navy suspended operational testing due to performance issues, which will likely delay the full-rate production decision and initial operational capability until 2015.¹⁰⁰ A total of \$0.8 billion has been appropriated through FY 2014, \$1.5 billion is requested over the FYDP, and \$1.8 billion is planned for beyond the FYDP. The program plans to procure 6,000 missiles.

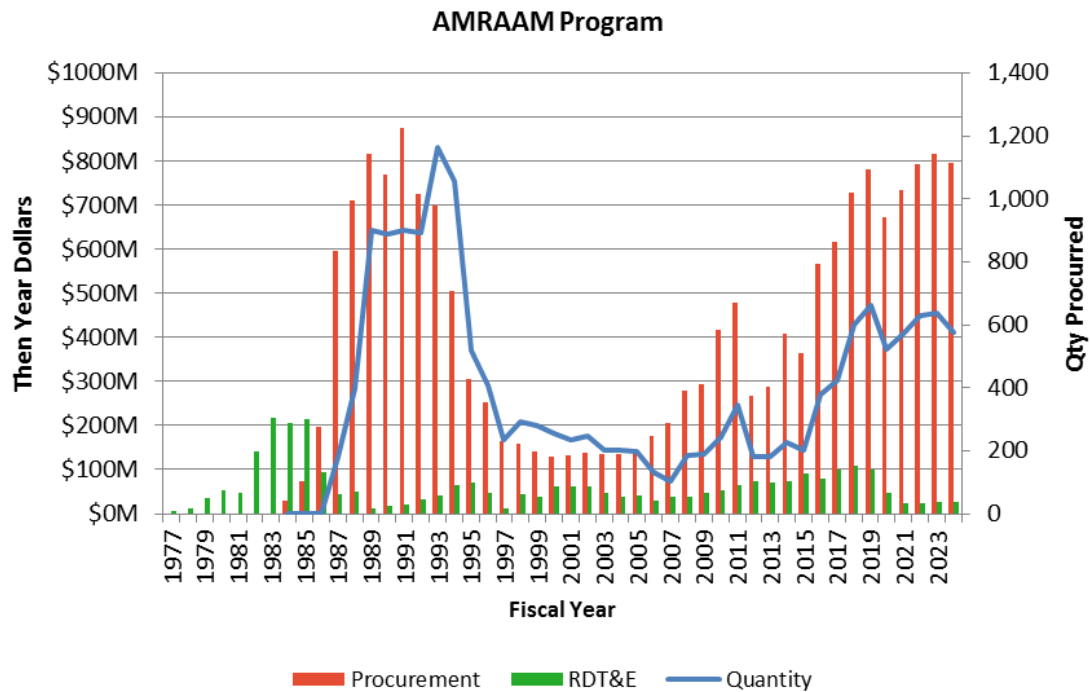


⁹⁹ Defense Industry Daily, "AIM-9X Block II & Beyond: The New Sidewinder Missiles," <http://www.defenseindustrydaily.com/aim-9x-block-ii-the-new-sidewinder-missile-011572/>.

¹⁰⁰ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 53–54.

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

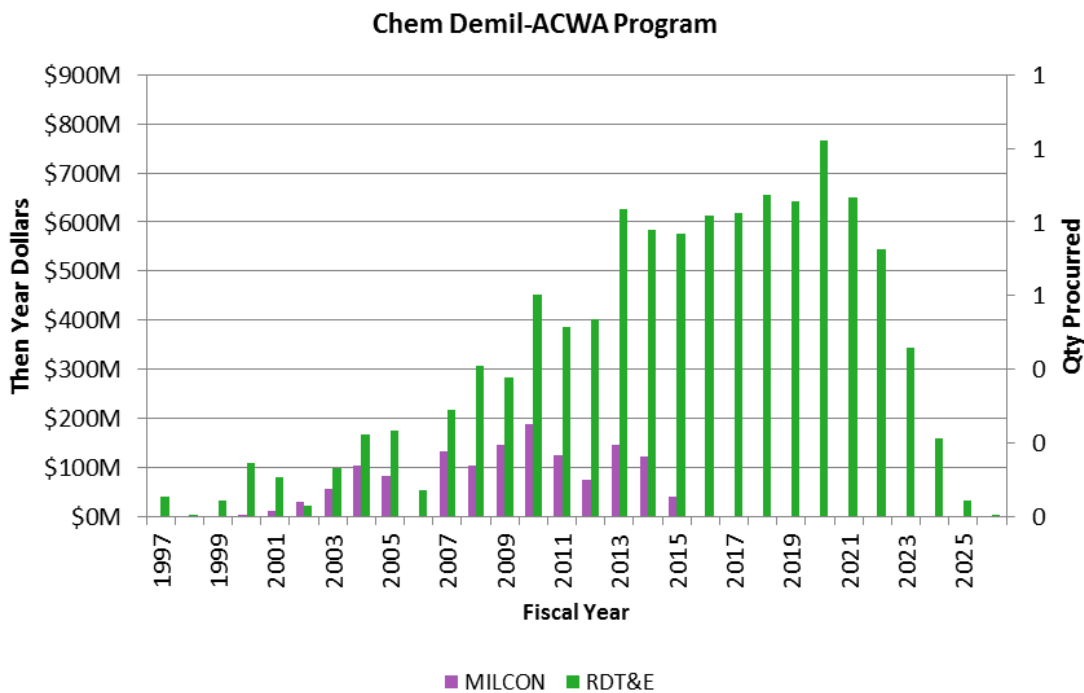
The AMRAAM is an Air Force-led program to acquire an advanced medium-range air-to-air missile. The AIM-120, designed to replace the AIM-7 Sparrow, is an active radar-guided missile with electronic protection capabilities. The AIM-120D will have improved accuracy, network compatibility, and electronic protection.¹⁰¹ A total of \$13.0 billion has been appropriated through FY 2014, \$3.5 billion is requested over the FYDP, and \$4.0 billion is planned for beyond the FYDP.



¹⁰¹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_08_AMRAAM_December2013SAR.PDF.

Chemical Demilitarization-Assembled Chemical Weapons Alternatives (Chem Demil-ACWA)

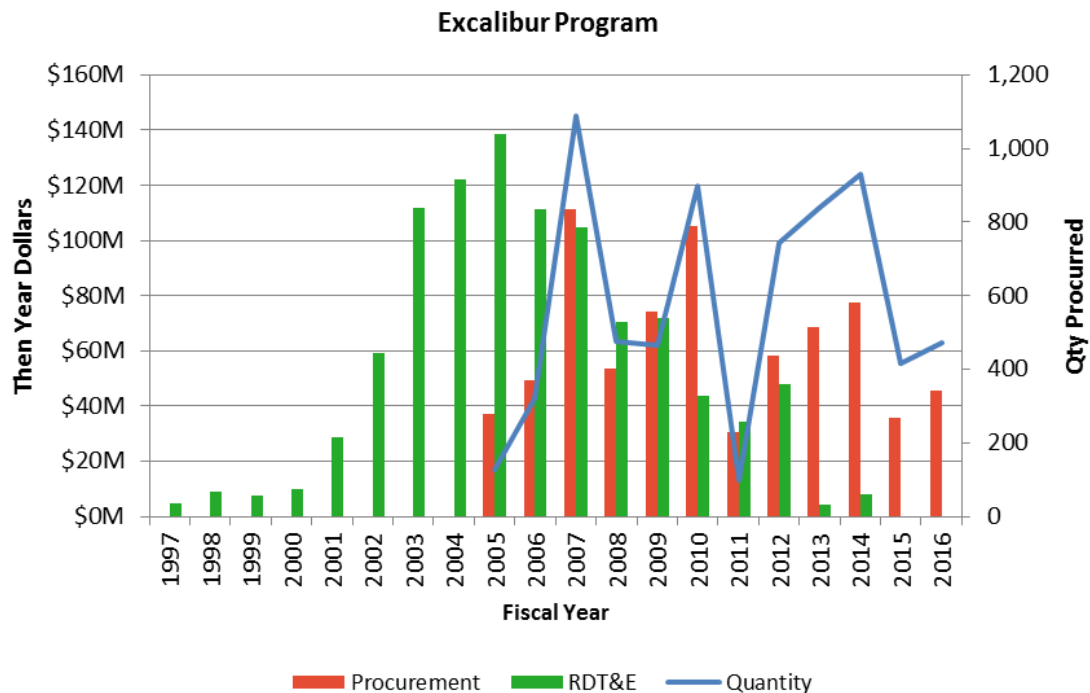
This DoD-wide program is implementing full-scale pilot testing of chemical weapon neutralization technologies. It is in the process of building fixed-base, single-use systems at the Pueblo Chemical Depot in Colorado and the Blue Grass Army Depot in Kentucky.¹⁰² A total of \$5.4 billion has been appropriated through FY 2014, \$3.1 billion is requested over the FYDP, and \$2.5 billion is planned for beyond the FYDP.



¹⁰² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_18_ChemDemil-ACWA.PDF.

Excalibur Precision 155mm Projectiles (Excalibur)

The Army's Excalibur projectile is a GPS-based fire-and-forget artillery munition intended to provide improved range and accuracy. The near vertical angle of its descent is supposed to minimize collateral damage and improve effectiveness in urban environments. Increment Ia-1 is in use, and Ia-2 is in production. Increment Ib is designed to increase reliability and reduce costs.¹⁰³ After exceeding the Army's reliability, lethality, and range requirements, the Increment Ib projectile entered full-rate production in July 2014.¹⁰⁴ A total of \$1.7 billion has been appropriated through FY 2014 and \$81 million is requested through the end of the program in 2016.¹⁰⁵



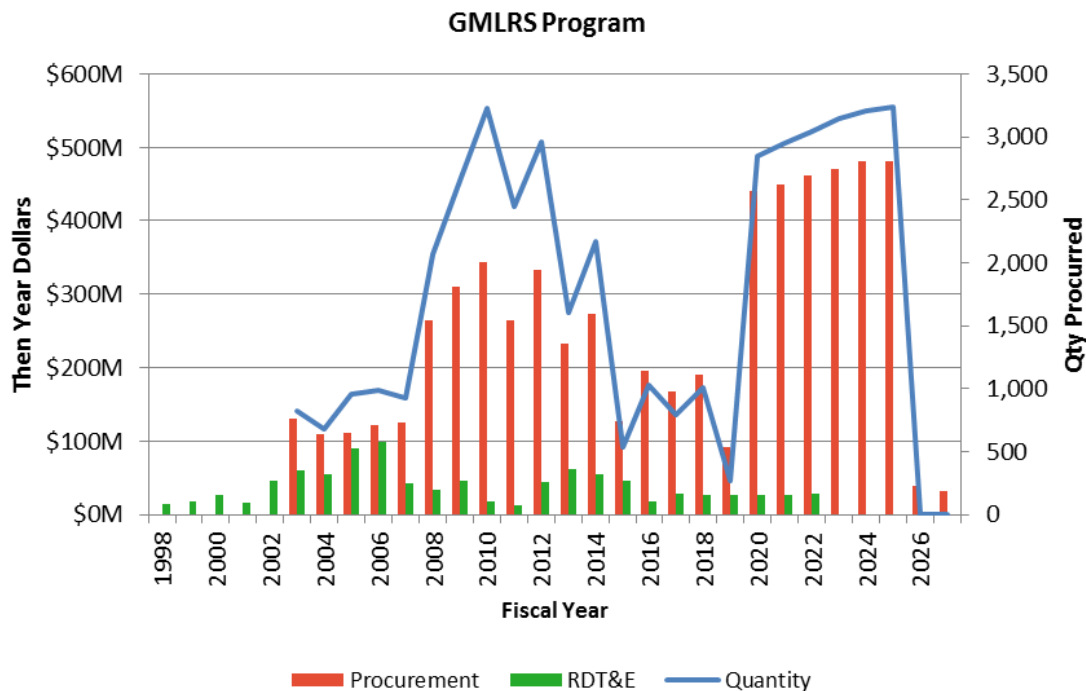
¹⁰³ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 65–66.

¹⁰⁴ “Excalibur IB enters full rate production and receives \$52 million award.” *The Wall Street Journal*, July 31, 2014, <http://online.wsj.com/article/PR-CO-20140731-911121.html>.

¹⁰⁵ 544 projectiles were procured with RDT&E funding, but are not included in the quantity line.

Guided Multiple Launch Rocket System/Guided Multiple Launch Rocket System Alternative Warhead (GMLRS/GMLRS AW)

This Army-led program is developing and procuring rockets designed to attack targets using indirect and precision fires at a range of 70km or more. GMLRS uses a solid propellant rocket and an inertial measurement unit with GPS assistance for guidance. It currently is fired either with cluster munitions for personnel and thinly armored vehicles or a 200-pound unitary warhead designed to limit collateral damage. The alternative warhead will replace the cluster munitions to reduce the likelihood of leaving unexploded ordnance on the battlefield and is in the engineering and manufacturing development phase of the program.¹⁰⁶ A total of \$3.4 billion has been appropriated through FY 2014, \$0.9 billion is requested over the FYDP, and \$2.9 billion is planned for beyond the FYDP.¹⁰⁷

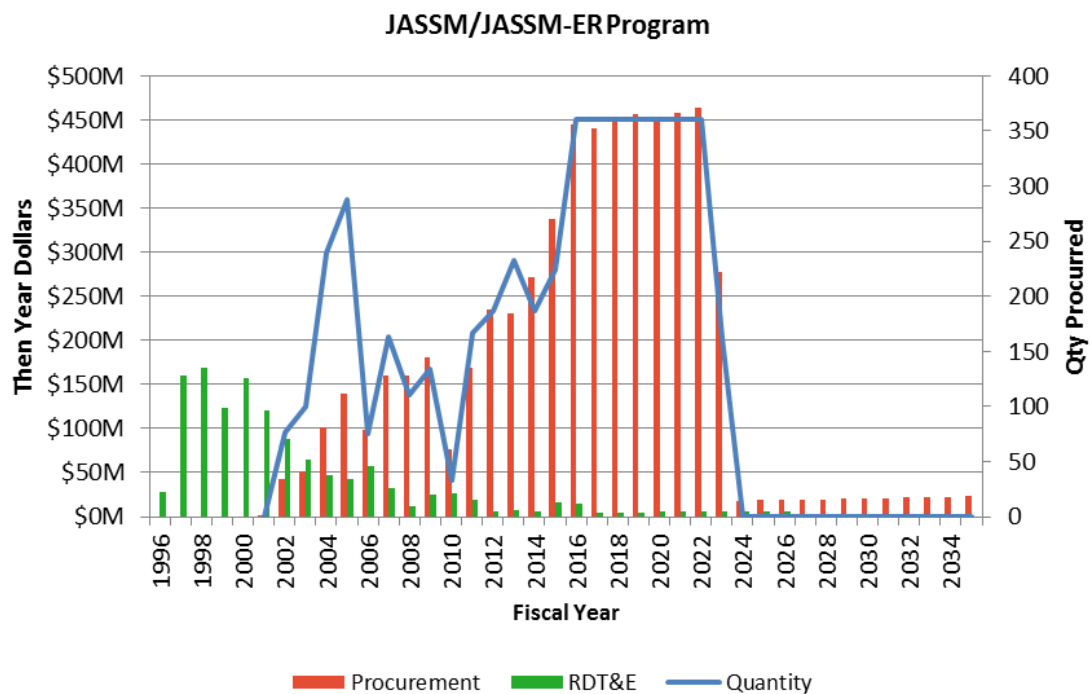


¹⁰⁶ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_31_GMLRS_GMLRS_AWDecember2013SAR.PDF.

¹⁰⁷ 376 GMLRS rockets were procured with RDT&E funding, but are not included in the quantity line.

Joint Air-to-Surface Standoff Missile/JASSM-Extended Range (JASSM/JASSM-ER)

The Air Force run JASSM/JASSM-ER program is developing the next generation low-observable, subsonic cruise missile. It is designed to carry a 1000-pound warhead with ranges greater than 200 nautical miles (JASSM) or 500 nautical miles (JASSM-ER). It is accurate within three meters when using the imaging infrared seeker and less than 13 meters when only using the GPS navigation system.¹⁰⁸ JASSM and JASSM-ER give fighters and bombers the ability to strike heavily defended targets from a safe distance. The two missiles share 70 percent of the same hardware and 95 percent of the same software. JASSM-ER, has experienced problems with the new missile engine, which has delayed the full-rate production decision.¹⁰⁹ A total of \$3.1 billion has been appropriated through FY 2014, \$2.2 billion is requested over the FYDP, and \$1.9 billion is planned for beyond the FYDP.¹¹⁰



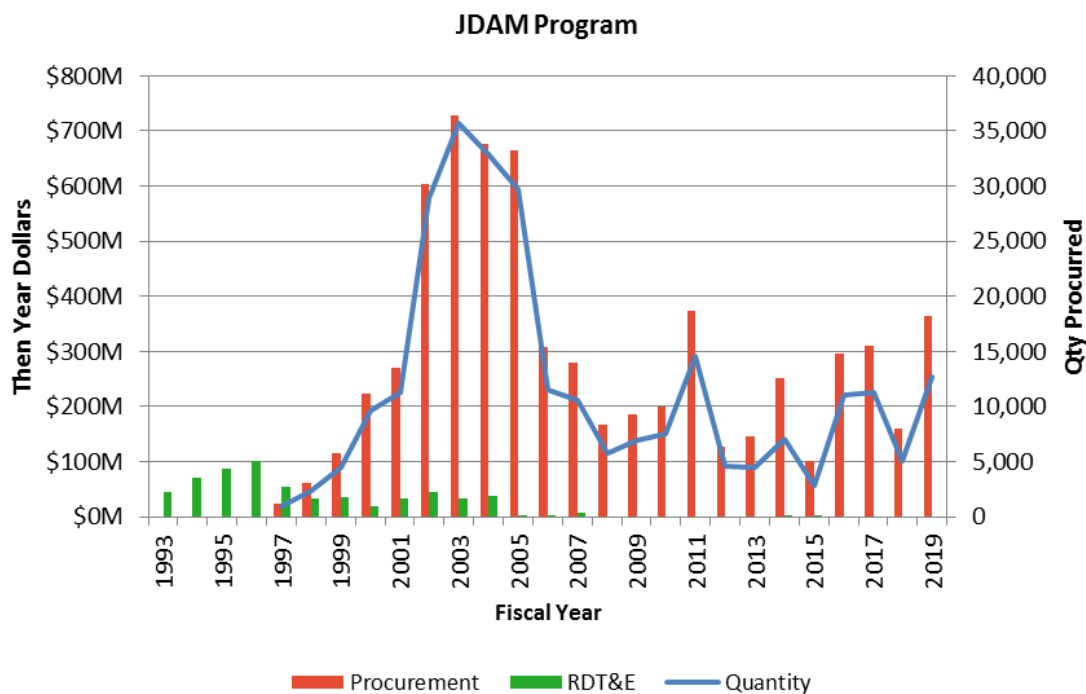
¹⁰⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_38_JAASMDDecember2013SAR.PDF.

¹⁰⁹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 81–82.

¹¹⁰ 87 JASSM missiles and 31 JASSM-ER missiles were procured with RDT&E funding, but are not included in the quantity line.

Joint Direct Attack Munition (JDAM)

JDAM is a joint Air Force/Navy program to upgrade the existing inventory of general-purpose bombs with GPS and inertial navigation tailkits to improve accuracy under all weather conditions. JDAM bombs can be employed on a variety of aircraft, including the B-52H, B-2A, F-16C/D, F/A-18A/C/D/E/F, F-15E, A-10C, AV-8B, and the F-22A.¹¹¹ Laser sensors are also being incorporated on some JDAMs to improve their ability to attack mobile targets while minimizing collateral damage.¹¹² A total of \$6.0 billion has been appropriated through FY 2014 and \$1.2 billion is requested over the FYDP. No additional funding is projected beyond the FYDP.¹¹³



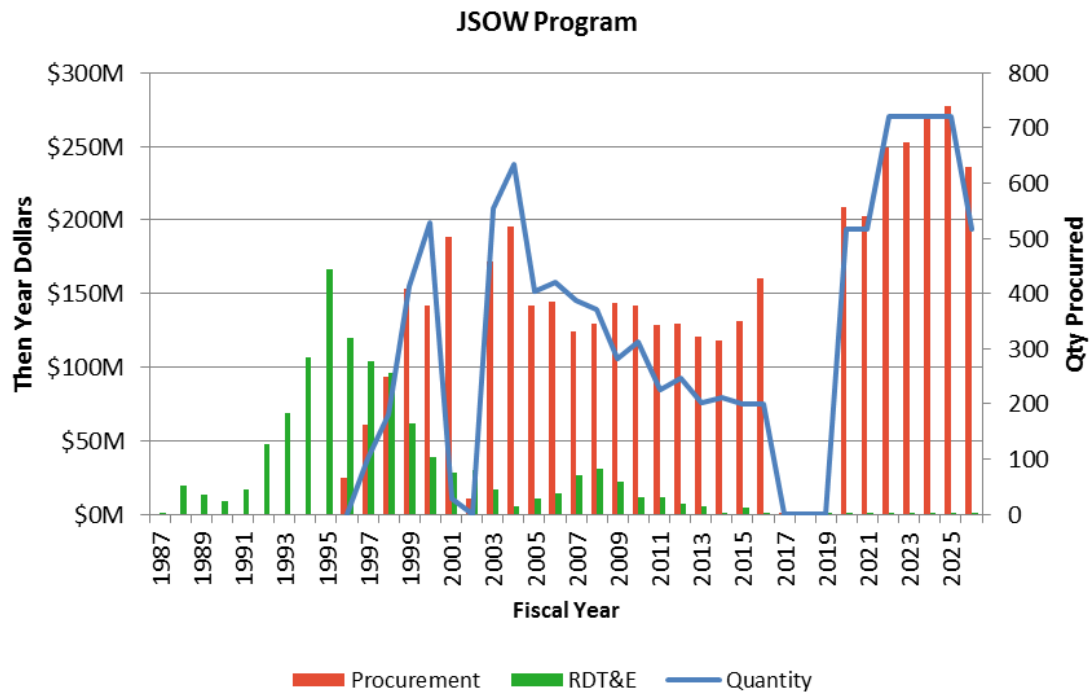
¹¹¹ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_39_JDAMDecember2013SAR.PDF.

¹¹² Boeing. "Boeing Receives Additional Laser JDAM Contract from US Navy." April 17, 2012. <http://boeing.mediaroom.com/index.php?s=20295&item=2223>.

¹¹³ Eight hundred and four JDAMs were procured with RDT&E funding, but are not included in the quantity line.

Joint Standoff Weapon (JSOW)

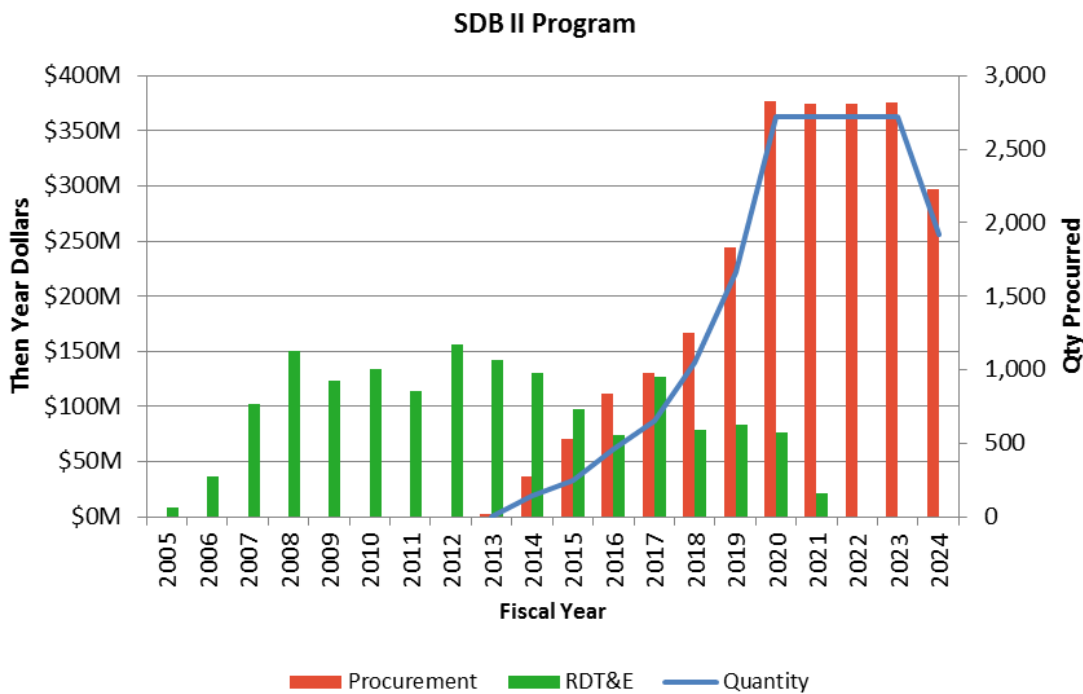
JSOW is a long-range air-to-ground weapon to attack a variety of targets under all conditions. The JSOW can be launched beyond the range of most surface-to-air systems and has a launch-and-leave capability allowing several target kills per sortie.¹¹⁴ The FY 2015 budget reduces the planned buy of JSOWs over the FYDP to 400. An additional 4,432 are projected to be procured in FY 2020 and later. A total of \$3.5 billion has been appropriated through FY 2014, \$0.3 billion is requested over the FYDP, and \$1.7 billion is planned beyond the FYDP.



¹¹⁴ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_43_JSOWDecember2013SAR.PDF.

Small Diameter Bomb Increment II (SDB II)

The Air Force's SDB II is an all-weather air-to-ground glide bomb for use against mobile targets. It uses radar, infrared, and laser sensors to track targets.¹¹⁵ As funding becomes available, it will be integrated with the F-15E, F-35, F/A-18E/F, F-16C, F-22A, B-1B, B-2, B-52, A-10, and MQ-9. The SDB II program is scheduled to enter low-rate production no earlier than September 2014, but the schedule might be delayed as the program works to correct for two flight test failures.¹¹⁶ A total of \$1.1 billion has been appropriated through FY 2014, \$1.2 billion is requested for the FYDP, and \$1.9 billion is planned for beyond the FYDP.¹¹⁷



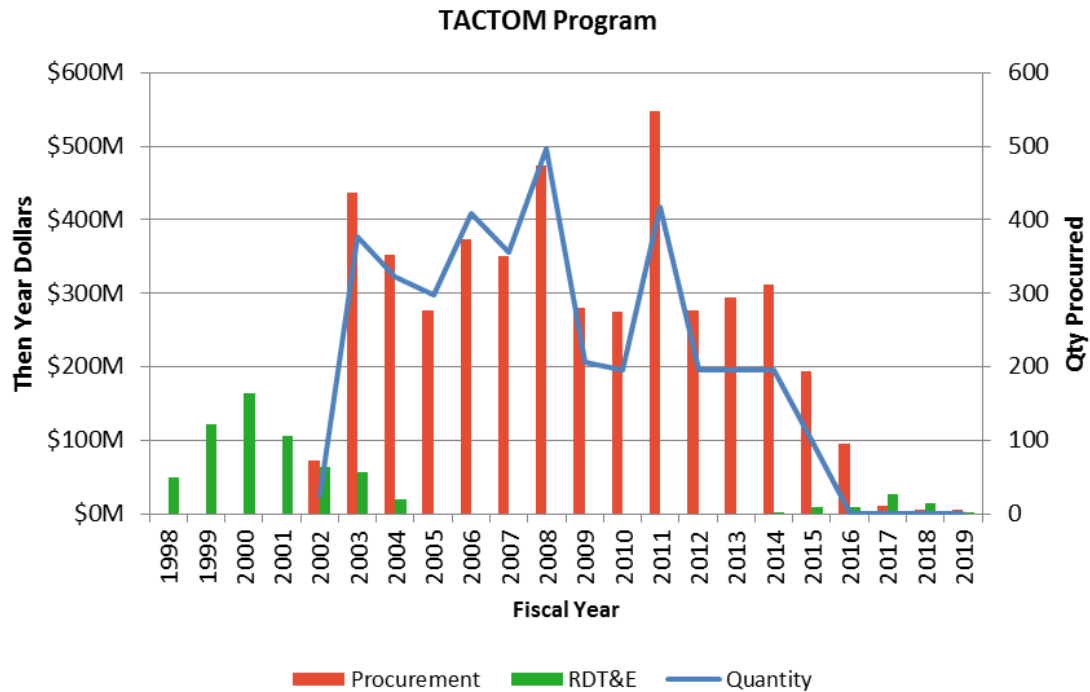
¹¹⁵ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 119–120.

¹¹⁶ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_68_SDB_II_December2013SAR.PDF.

¹¹⁷ 163 SDB II bombs were procured with RDT&E funding, but are not included in the quantity line.

Tactical Tomahawk (TACTOM)

TACTOM is a Navy cruise missile designed to destroy fixed and mobile targets at a range of up to 1,000 miles. The Block IV design includes improved navigation and anti-jam GPS, the ability to re-target in-flight, a loitering capability, and the ability to send a single-frame battle-damage assessment image of overflow areas.¹¹⁸ The budget request ends the procurement of Tomahawks in FY 2015. A total of \$4.9 billion has been appropriated through FY 2014 and \$0.4 billion is requested for the FYDP.¹¹⁹



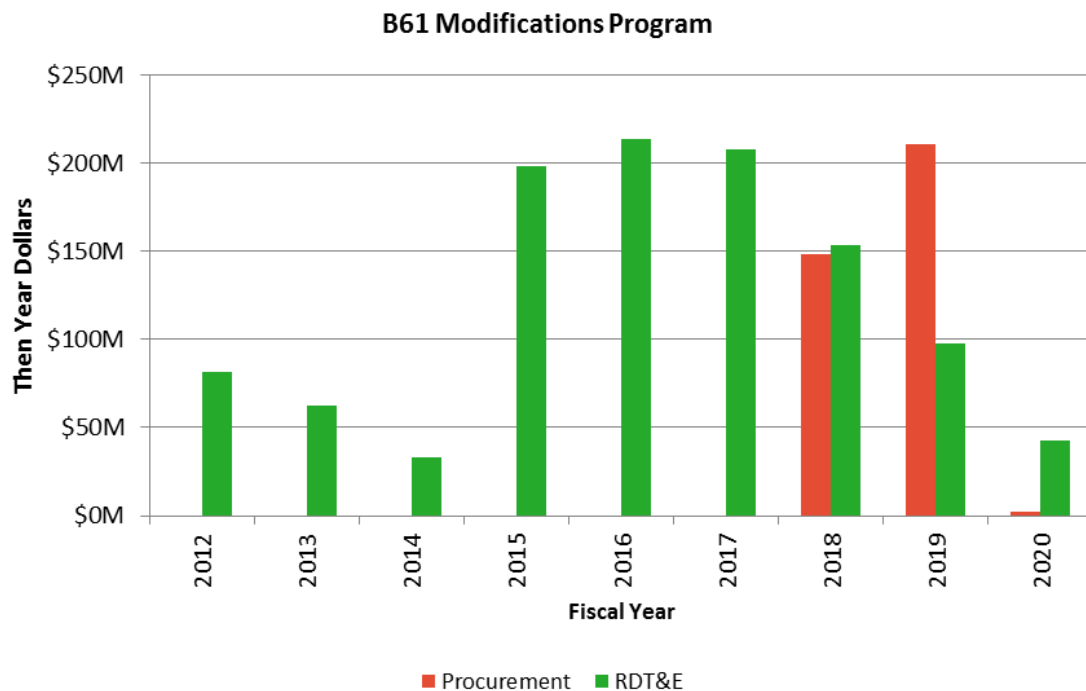
¹¹⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_72_TACTOMDecember2013SAR.PDF.

¹¹⁹ Ten TACTOM missiles were procured with RDT&E funding, but are not included in the quantity line.

NUCLEAR FORCES

B61 Mod 12 Life Extension Program Tailkit Assembly

The B61 modernization program will extend the service life of the air-delivered nuclear gravity weapon with an estimated yield of 0.3 to 350 kilotons.¹²⁰ The modernization effort includes the addition of a tailkit to the bomb to improve its accuracy and reduce the yield required to destroy a target.¹²¹ It is a joint DoD/DOE program with the Air Force leading the DoD portion of the program.¹²² A total of \$0.2 billion has been appropriated through FY 2014, \$1.2 billion is requested over the FYDP, and \$45 million is planned for beyond the FYDP. These figures only include DoD's share of the program's funding.



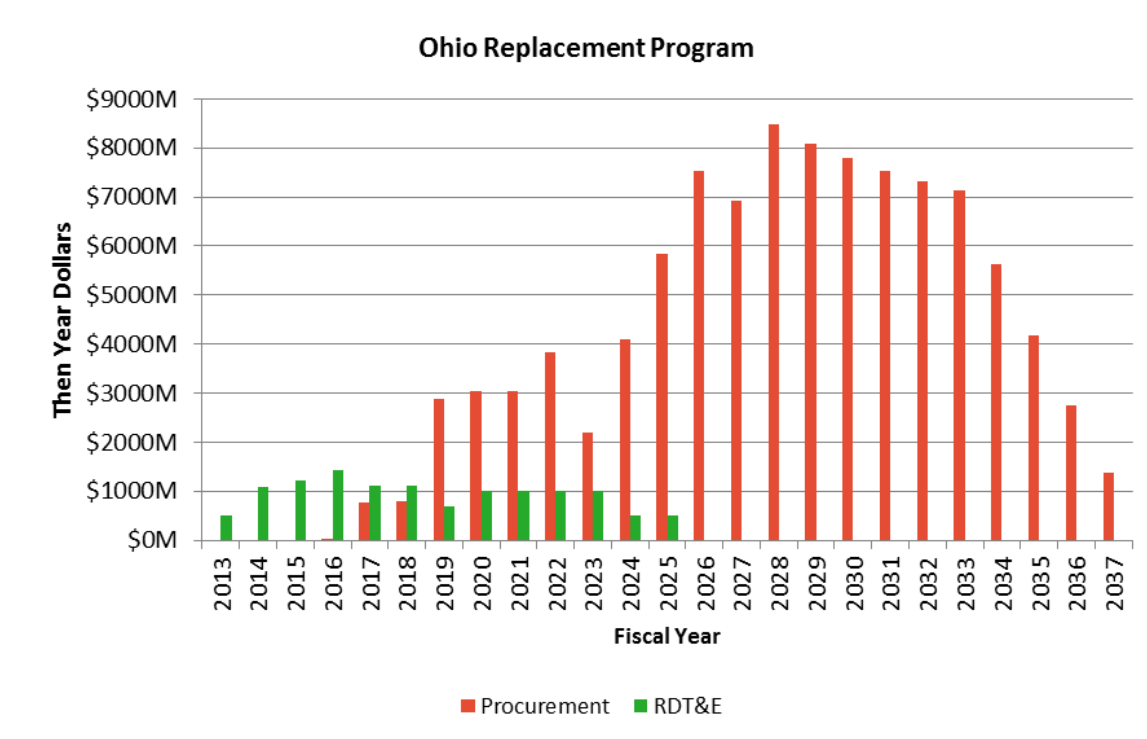
¹²⁰ Jeffrey Lewis, "B61 Mod 12 LEP," *Arms Control Wonk*, blog, October 13, 2008, <http://lewis.armscontrolwonk.com/archive/2060/b61-mod-12-lep>; "B61 nuclear bomb," Jane's Strategic Weapons Systems, IHS Jane's, June 18, 2014.

¹²¹ National Nuclear Security Administration, *Statement on B61 Extension Program and Future Stockpile Strategy before the House Armed Services Subcommittee on Strategic Forces*, Congressional Testimony, October 30, 2013, <http://nnsa.energy.gov/mediaroom/congressionaltestimony/lep>.

¹²² DoD, *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_11_B61Mod12_LEP_TKADecember2013SAR.PDF.

Ohio-Class Replacement SSBN

The Navy's current fleet of 14 Ohio-class ballistic missile submarines is the most survivable leg of the nuclear triad. The Navy has already extended the life of the Ohio-class boats beyond their original design life and plans to begin retiring them in the late 2020s. The Navy has begun a program to design and build a fleet of 12 replacement subs for the Ohio-class, but this program is not yet listed in the SAR. While the Navy has not yet released a formal cost estimate, some cost information can be derived from RDT&E funding included in the budget request and the Navy's 30-year shipbuilding plan. Using the RDT&E funding identified for the program in the FY 2015 budget request and assuming roughly \$5 billion in additional development funding will be needed in FY 2020 and beyond, the total RDT&E cost of the program is likely to total some \$12 billion in then-year dollars. Navy plans indicate that procurement of the first sub will begin in FY 2021, followed by the second in FY 2024, and one sub per year from FY 2026 to FY 2035.¹²³ Using a first unit cost of \$12 billion and average procurement unit cost of \$6.5 billion (in FY 2015 dollars), the total procurement costs would be roughly \$101 billion (in then-year dollars).¹²⁴ The total program cost would be \$113 billion in then-year, or \$90 billion in FY 2015 dollars, making it second to only the F-35 program in terms of future funding requirements.

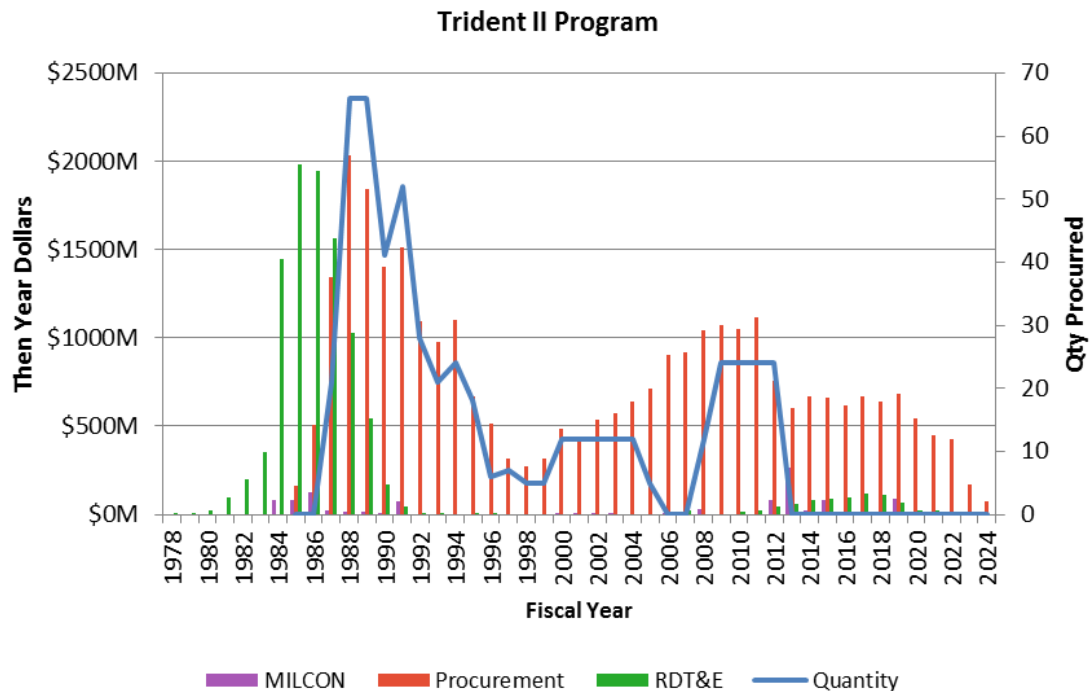


¹²³ Department of the Navy, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2015* (Washington, DC: DoD, June 2014).

¹²⁴ This estimate is similar to the CBO's estimate. See: Congressional Budget Office, *An Analysis of the Navy's Fiscal Year 2014 Shipbuilding Plan* (Washington, DC: CBO, October 2013), pp. 23–24.

Trident II (D-5) Sea-Launched Ballistic Missile UGM 133 A (Trident II)

The Trident II is a submarine-launched nuclear ballistic missile fielded on the Ohio-class SSBN. The current program modernizes and extends the service life of existing Trident II missiles. Due to the high rate of Trident II production early in the program, a significant portion of the inventory will be due for modernization in the coming years. Overall program costs could increase as the industrial base for solid fuel rocket motors would be damaged if NASA chooses a liquid fuel rocket motor for its next generation launch vehicle¹²⁵ A total of \$36.0 billion has been appropriated through FY 2014, \$3.9 billion is requested for the FYDP, and \$1.7 billion is planned for beyond the FYDP.¹²⁶



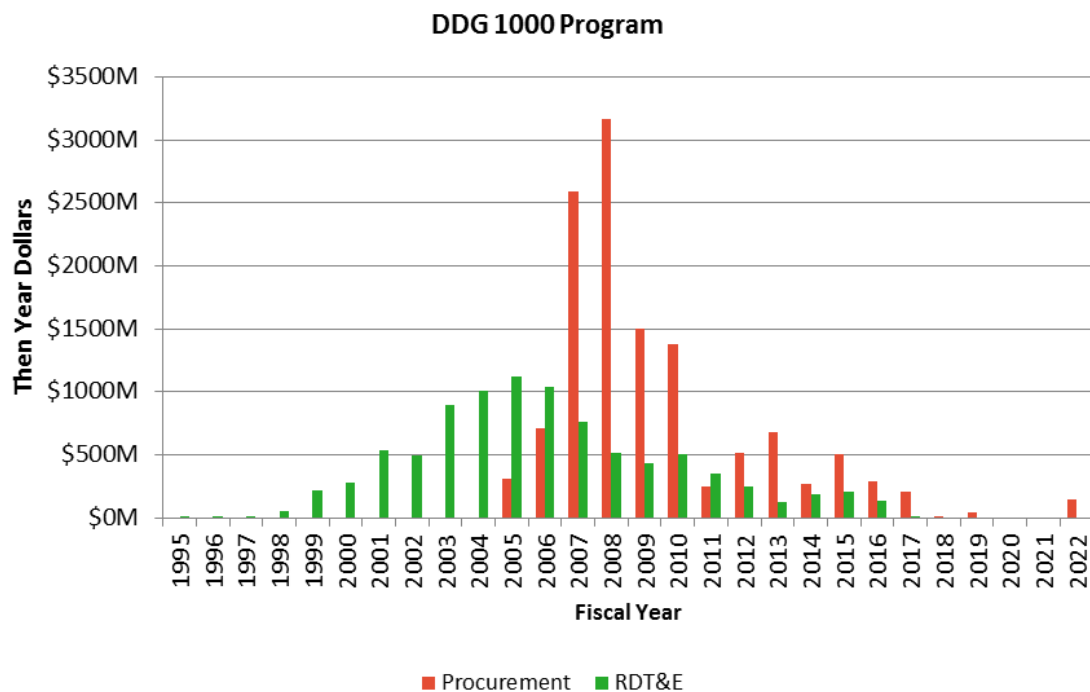
¹²⁵ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_73_Trident_II_MissileDecember2013SAR.PDF.

¹²⁶ 28 Trident II missiles were procured with RDT&E funding, but are not included in the quantity line.

SHIPBUILDING

DDG-1000 Zumwalt Class Destroyer

The Navy's DDG-1000 is a newly designed destroyer for littoral and land-attack operations. The DDG-1000 incorporates several features to reduce its radar signature, and it includes an advanced gun system and greater power generation capabilities for future weapons systems. The lead ship is scheduled for delivery in September 2014 and fabrication is in process on the remaining two ships in the class.¹²⁷ The program was originally intended to produce ten ships but was scaled back by Secretary Gates to three ships and DDG-51 production was restarted.¹²⁸ A total of \$20.1 billion has been appropriated through FY 2014, \$1.4 billion is requested over the FYDP, and \$149 million is planned for beyond the FYDP.

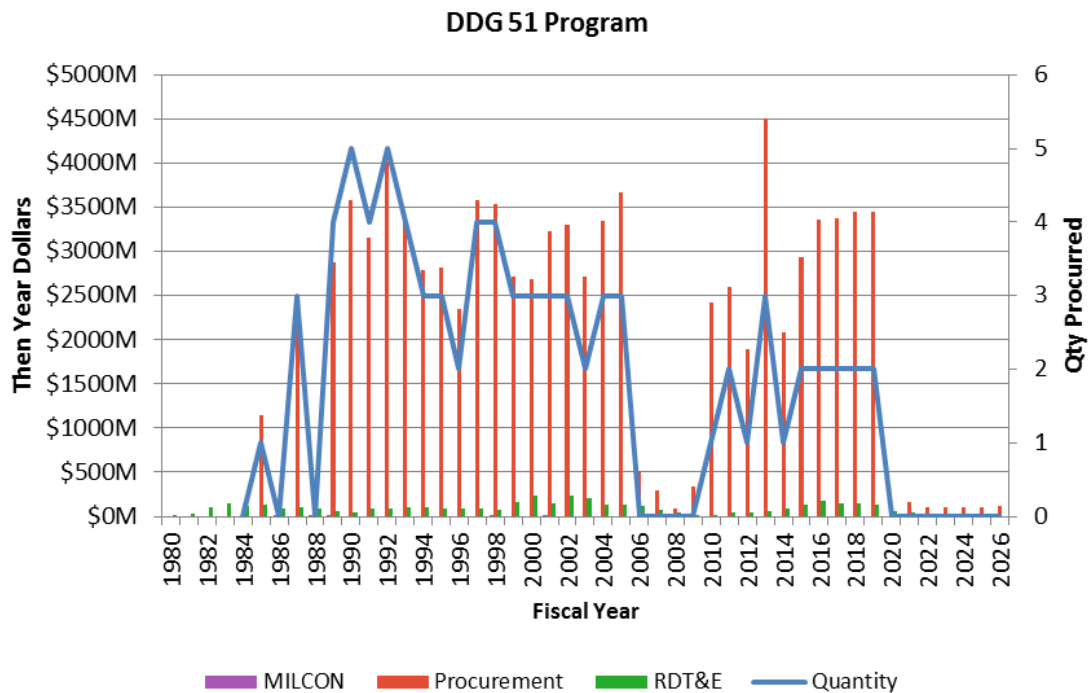


¹²⁷ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 59–60.

¹²⁸ “Gates Lays out Key FY 2010 Budget Recommendations,” *Defense Industry Daily*, April 6, 2009, <http://www.defenseindustrydaily.com/Gates-Lays-Out-Key-FY-2010-Budget-Recommendations-05367/>.

DDG-51 Arleigh Burke Class Guided Missile Destroyer

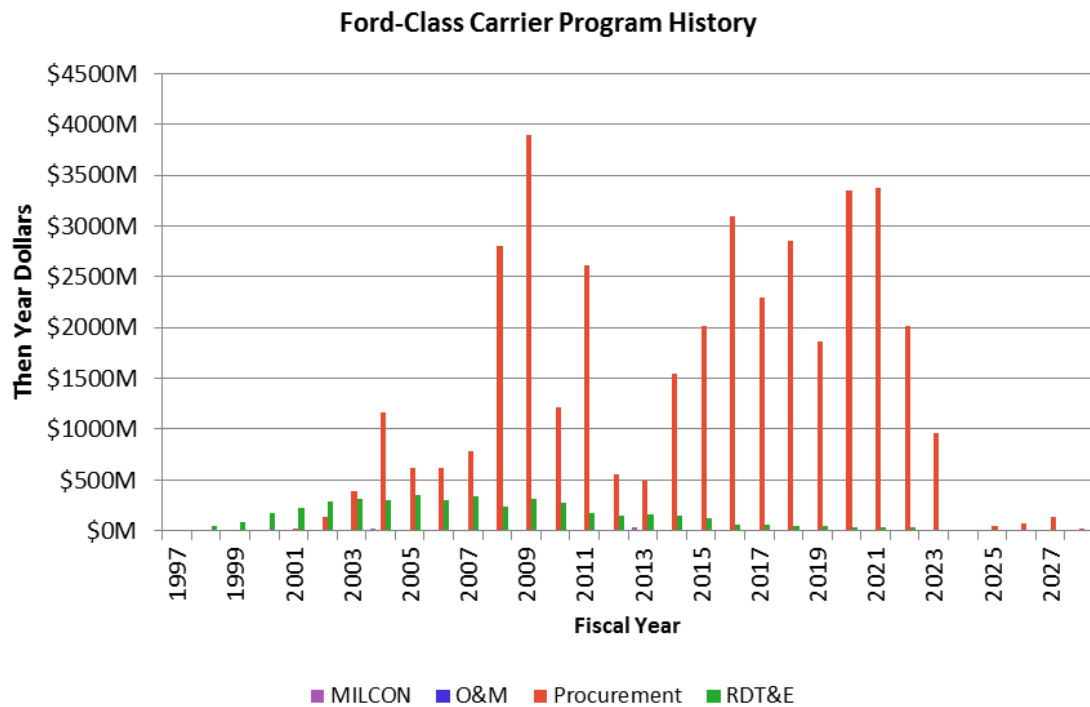
The DDG-51 destroyer is designed to operate against air, surface, and subsurface threats. It has been in procurement since the 1980s, making it one of the oldest programs in DoD's current portfolio. The Navy restarted the program after a four-year break in production. It plans to procure ten ships over the FYDP. The latest version of this ship, Flight III, will likely have an increased focus on missile defense and will include the new Air and Missile Defense Radar (AMDR). Delays in the AMDR program, however, may delay the design of the Flight III.¹²⁹ A total of \$75.7 billion has been appropriated through FY 2014, \$17.3 billion is requested over the FYDP, and \$1.0 billion is planned for beyond the FYDP.



¹²⁹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 133.

Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78)

The Ford-class carrier is the Navy's latest generation of super-carrier, designed for higher sortie rates and reduced manpower through the use of new technologies, such as the electromagnetic catapult to replace the traditional steam catapult. The lead ship's procurement costs have increased by 22 percent, and construction has been delayed by critical technology development delays, material shortages, and engineering problems. The lead ship is expected to be delivered in 2016, and initial operating capability is expected in 2017.¹³⁰ A total of \$20.8 billion has been appropriated through FY 2014, \$12.5 billion is requested over the FYDP, and \$10.1 billion is planned for beyond the FYDP. The program does not include estimates for the procurement of additional aircraft carriers at five-year intervals from FY 2023 forward as projected in the Navy's most recent 30-year shipbuilding plan.¹³¹

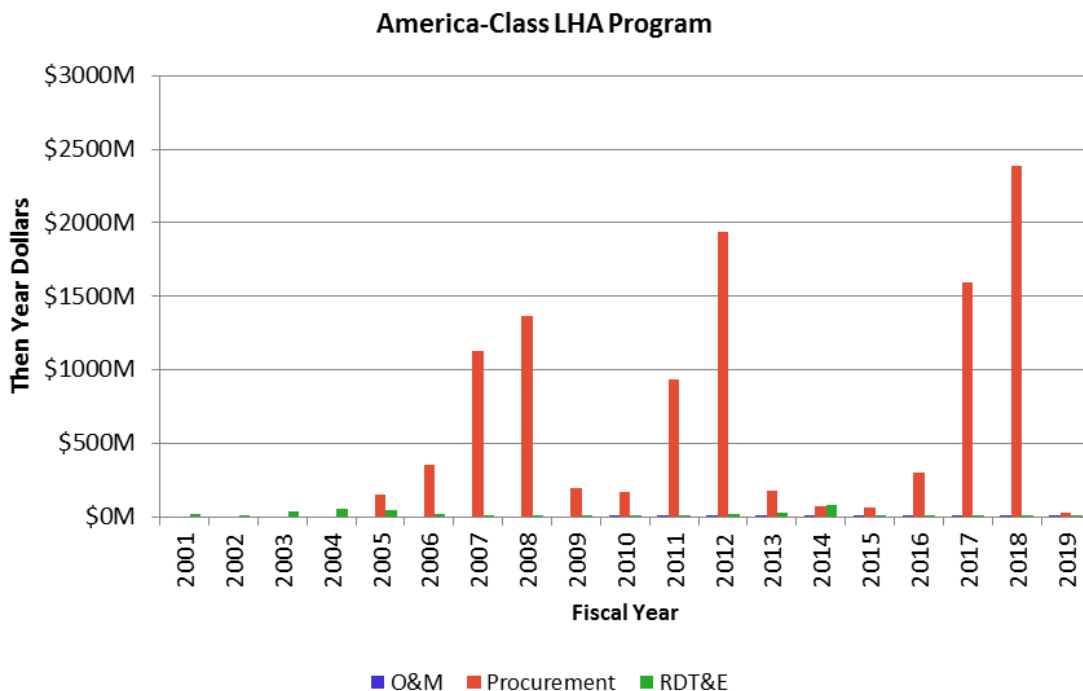


¹³⁰ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 73–74.

¹³¹ Office of the Chief of Naval Operations, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2015*. (Washington, DC: DoD, 2014).

LHA 6 America-Class Amphibious Assault Ship

The LHA 6 America-class amphibious assault ship is a small deck aircraft carrier capable of supporting helicopters and short takeoff/vertical landing fixed-wing aircraft, such as the F-35B. The lead ship in the class was delivered in April 2014,¹³² 20 months behind schedule, the second ship is under construction, and the contract for the third should be awarded in FY2017. LHA 6 and 7 do not have a well deck to move people and equipment rapidly from ship to shore, but LHA 8 will be redesigned to include a well deck. The flight deck of LHA 6 also has to be reconfigured to withstand the exhaust and downwash from the F-35B.¹³³ The LHA 6 class can transport up to 1,800 troops and their equipment as well as 9 F-35B fighters, 4 AH-1Z attack helicopters, 4 CH-53E helicopters, 12 MV-22 Osprey's, and 2 MH-60S search and rescue helicopters.¹³⁴ A total of \$6.8 billion has been appropriated through FY 2014 and \$4.4 billion is requested over the FYDP to complete the procurement of three LHAs. No additional funding or procurements are projected beyond the FYDP.



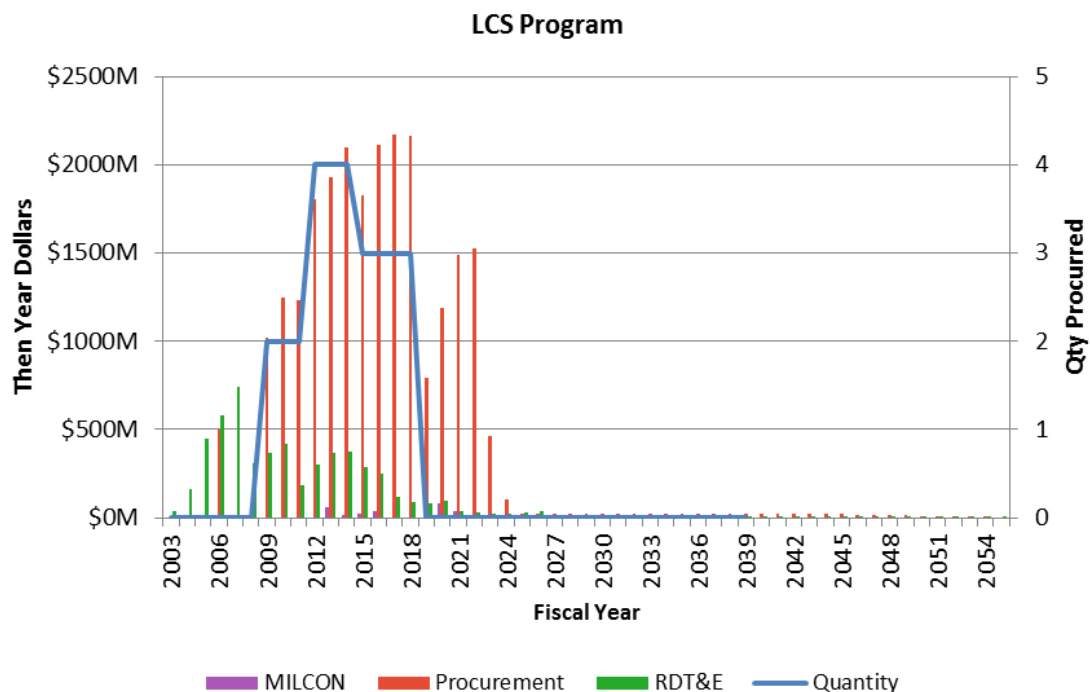
¹³² U.S. Navy. *Navy Accepts Delivery of the future USS America (LHA 6)*. April 28, 2014, http://www.navy.mil/submit/display.asp?story_id=80279.

¹³³ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 91–92.

¹³⁴ Ingalls Huntington. *The LHA 6 America-class of Amphibious Assault Ships*. <http://ingalls.huntingtoningalls.com/products/lha/class>.

Littoral Combat Ship (LCS)

The Navy's LCS consists of the ship and separately procured modular mission packages designed for mine countermeasures, anti-submarine warfare, and surface warfare missions. There are two versions of the LCS—the steel semi-planing monohull (Freedom variant) and the aluminum trimaran hull (Independence variant). The Navy had planned to downselect to a single design after the first four ships but instead opted to split the award between the two contractors. The mine countermeasures module has experienced performance problems, the surface warfare module is still under development, and development on the anti-submarine warfare module was restarted with new requirements.¹³⁵ In the FY 2015 budget, DoD elected to cut the projected procurement quantity from 52 to 32 ships and consider alternative designs for a “capable and lethal small surface combatant” including “a completely new design, existing ship designs (including LCS), or a modified LCS.”¹³⁶ A total of \$14.2 billion has been appropriated through FY 2014 for development and procurement of 18 ships and 12 mission modules. An additional \$10.0 billion is requested over the FYDP for 12 ships and 26 mission modules, and \$5.8 billion is planned for beyond the FYDP to procure 21 additional mission modules.¹³⁷



¹³⁵ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 93–96.

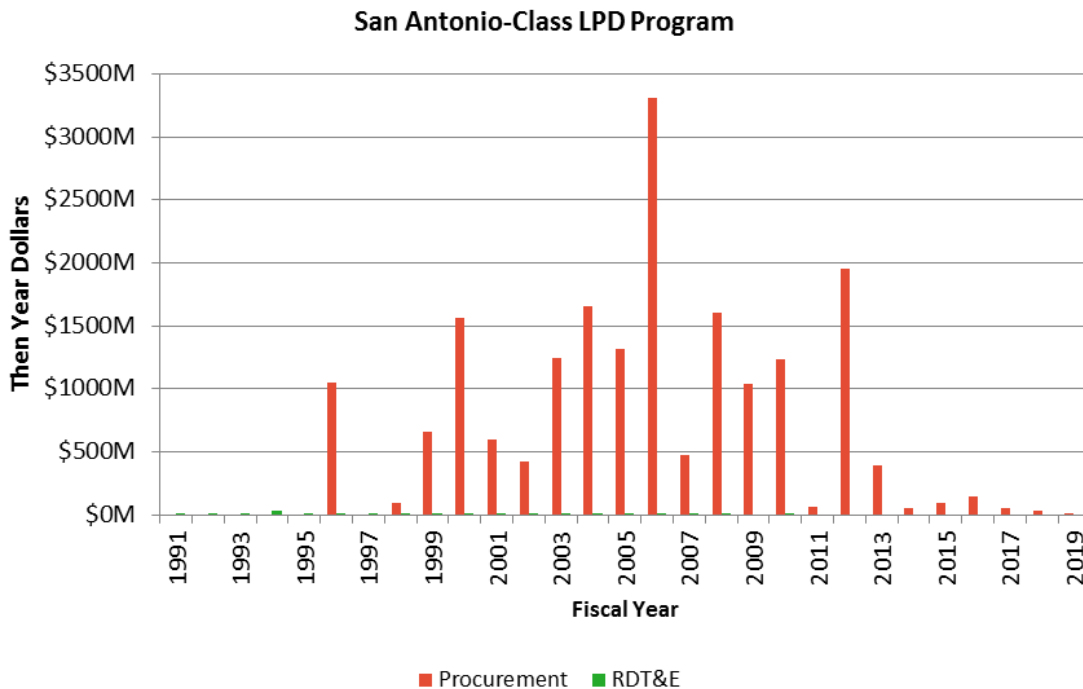
¹³⁶ DoD, *Department of Defense Selected Acquisition Reports (SARs) (as of December 31, 2013)*.

<http://www.defense.gov/Releases/Release.aspx?ReleaseID=16644/>.

¹³⁷ Two of the planned LCS seaframes were procured with RDT&E funds, but are not included in the quantity line. Additionally, five mission modules were procured with RDT&E funds. The quantity line only includes seaframes.

LPD 17 San Antonio Class Amphibious Transport Dock

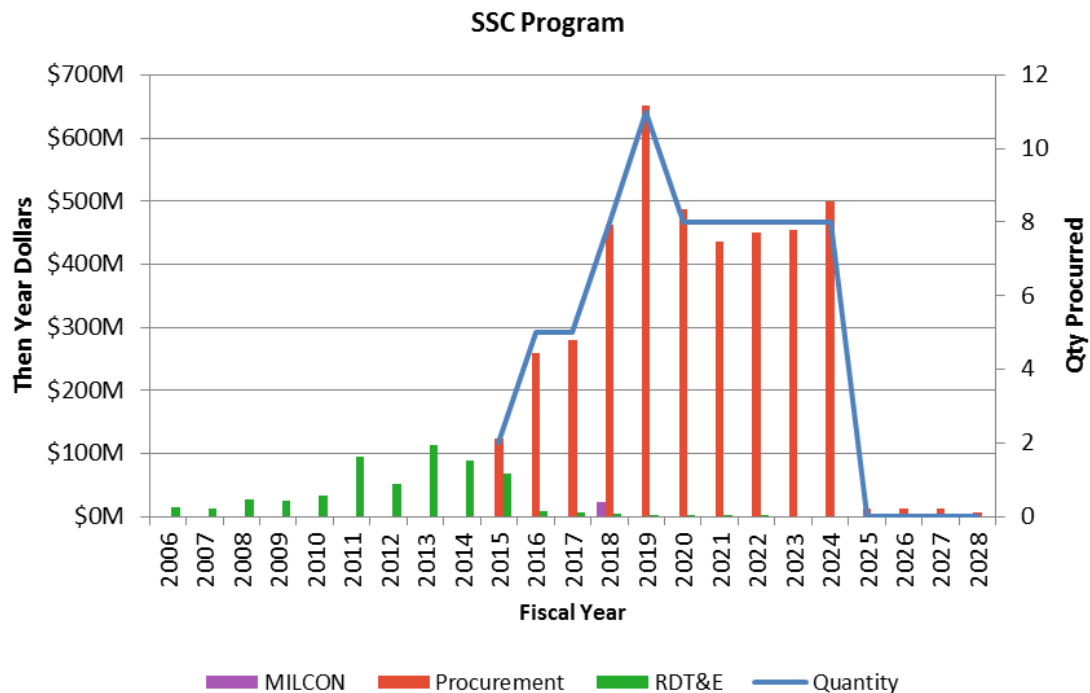
The San Antonio class landing platform dock (LPD) is designed to transport and land elements of a Marine landing force by helicopter, landing craft, and amphibious vehicles. An LPD 17 can carry up to 800 personnel (surge) and either four CH-46 helicopters or two MV-22 tilt rotors. The FY 2013 appropriations bill added advanced procurement funding for a twelfth LPD 17 class ship, but the program does not plan to build ships beyond the eleventh one procured in FY 2012.¹³⁸ A total of \$18.8 billion has been appropriated through FY 2014 for development and procurement of 11 ships, and \$0.3 billion is requested to complete the program over the FYDP.



¹³⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_51_LPD17December2013SAR.PDF.

Ship to Shore Connector Amphibious Craft (SSC)

The Navy's SSC is an air cushioned landing craft designed to transport personnel, equipment, and supplies from amphibious vessels to shore. It will be lighter and more environmentally friendly than the system it replaces, the Landing Craft, Air Cushion (LCAC). The SSC will deploy from the well deck of amphibious ships, such as the LPD-17 class.¹³⁹ The FY 2015 request accelerates the program with procurement scheduled to begin in FY 2015 and continue through FY 2024.¹⁴⁰ The Navy plans to procure 73 landing craft. A total of \$0.5 billion has been appropriated through FY 2014, \$1.9 billion is requested for the FYDP, and \$2.4 billion is planned for beyond the FYDP.¹⁴¹



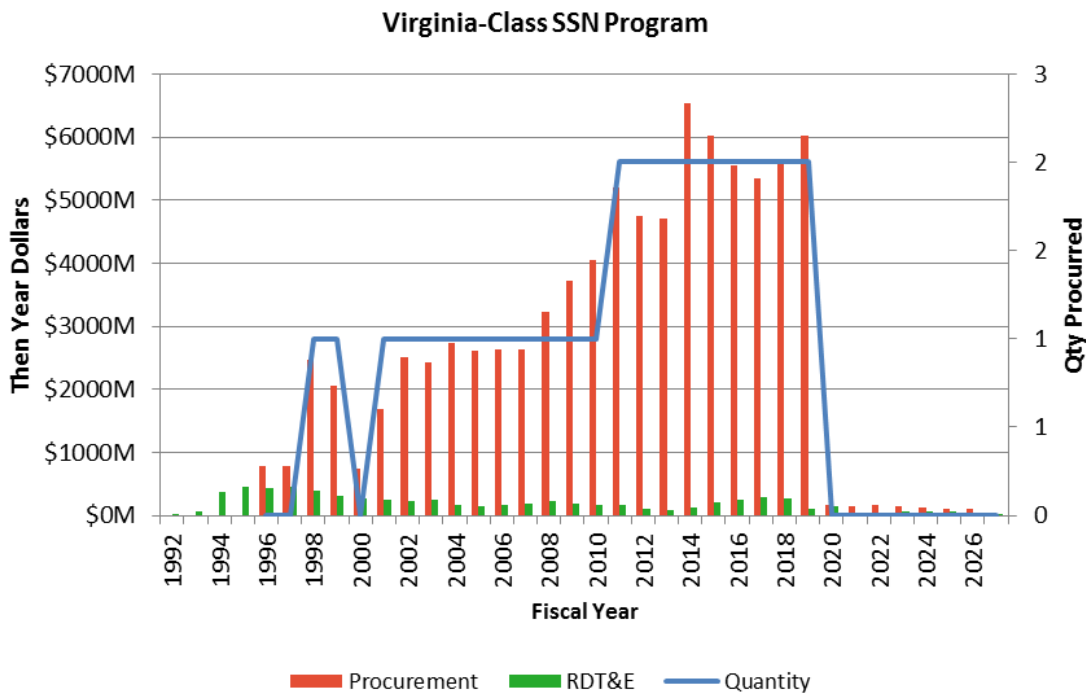
¹³⁹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 117–118.

¹⁴⁰ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_70_SSCDecember2013SAR.PDF.

¹⁴¹ Two of these landing craft were procured with RDT&E funding, but are not reflected in the quantity line.

SSN 774 Virginia Class Submarine

The Virginia class SSN is the replacement for the Los Angeles class attack submarine. In addition to performing traditional submarine missions, the Virginia class also supports special operations forces and maintains a cruise missile vertical launch capability.¹⁴² The current SAR only includes procurements of two Virginia class submarines per year through FY 2019. The Navy's 30-year shipbuilding plan, however, indicates that procurements will continue, but the costs of these ships are not reflected in the SAR program.¹⁴³ The Navy is also continuing to plan for the Virginia Payload Module, which will add additional vertical launch tubes to the hull design for future ships. This additional cruise missile launch capacity will help mitigate the loss of strike capacity as existing SSGNs are decommissioned.¹⁴⁴ A total of \$61.4 billion has been appropriated through FY 2014 for the development and procurement of the initial 20 SSNs, \$29.7 billion is requested over the FYDP for ten SSNs. The SAR projects an additional \$1.4 billion beyond the FYDP but no additional procurements are included in these costs.



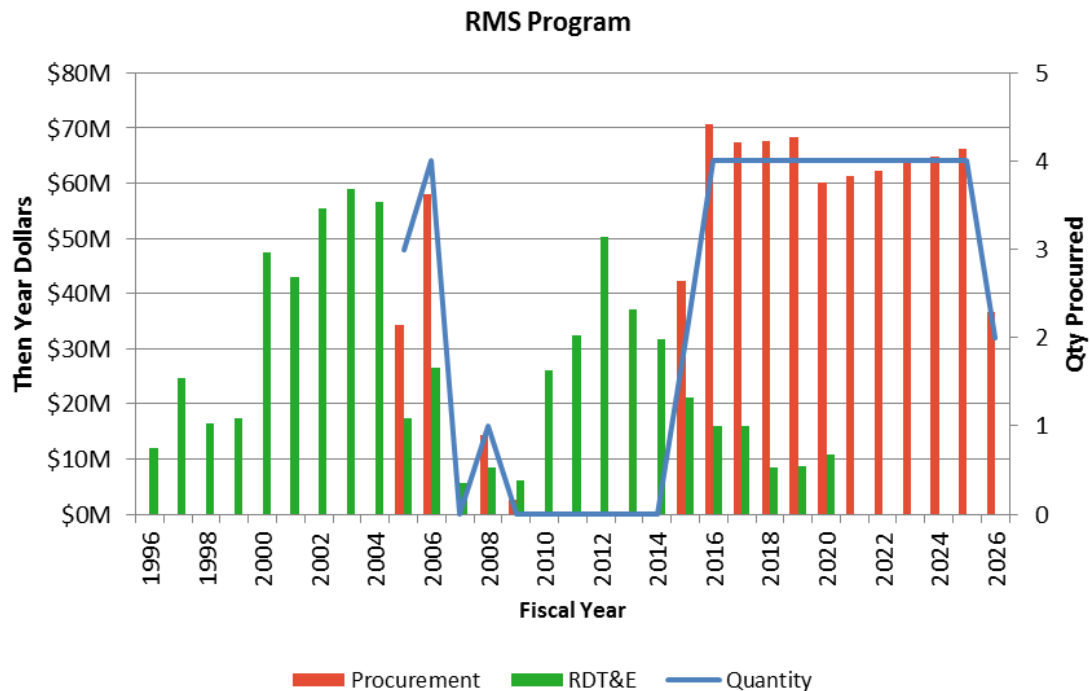
¹⁴² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_71_SSN774December2013SAR.PDF.

¹⁴³ Office of the Chief of Naval Operations, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2015*. (Washington, DC: DoD, 2014).

¹⁴⁴ Four Ohio class ballistic missile submarines were converted to guided missile submarines (SSGN) to provide the Navy with increased strike and special operations capabilities from a clandestine platform. See United States Navy Fact File. *Guided Missile Submarines: SSGN*. (Washington, DC: DoD, 2013), http://www.navy.mil/navydata/fact_display.asp?cid=4100&tid=300&ct=4 and DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_71_SSN774December2013SAR.PDF.

Remote Minehunting System (RMS)

This Navy program is developing and procuring a semi-autonomous system to detect, classify, and localize bottom and moored mines in shallow and deep water. It will deploy from an LCS as part of the mine countermeasure mission package and will allow the Navy to conduct mine countermeasure operations while keeping sailors and ships safely away from minefields.¹⁴⁵ The Navy released a request for proposals on August 26, 2014 launching a new competition for the RMS mission vehicle. The Navy expects to award the contract late in 2015.¹⁴⁶ A total of \$0.7 billion has been appropriated through FY 2014, \$0.4 billion is requested for the FYDP, and \$0.4 billion is planned for beyond the FYDP.¹⁴⁷



¹⁴⁵ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_65_RMSDecember2013SAR.PDF.

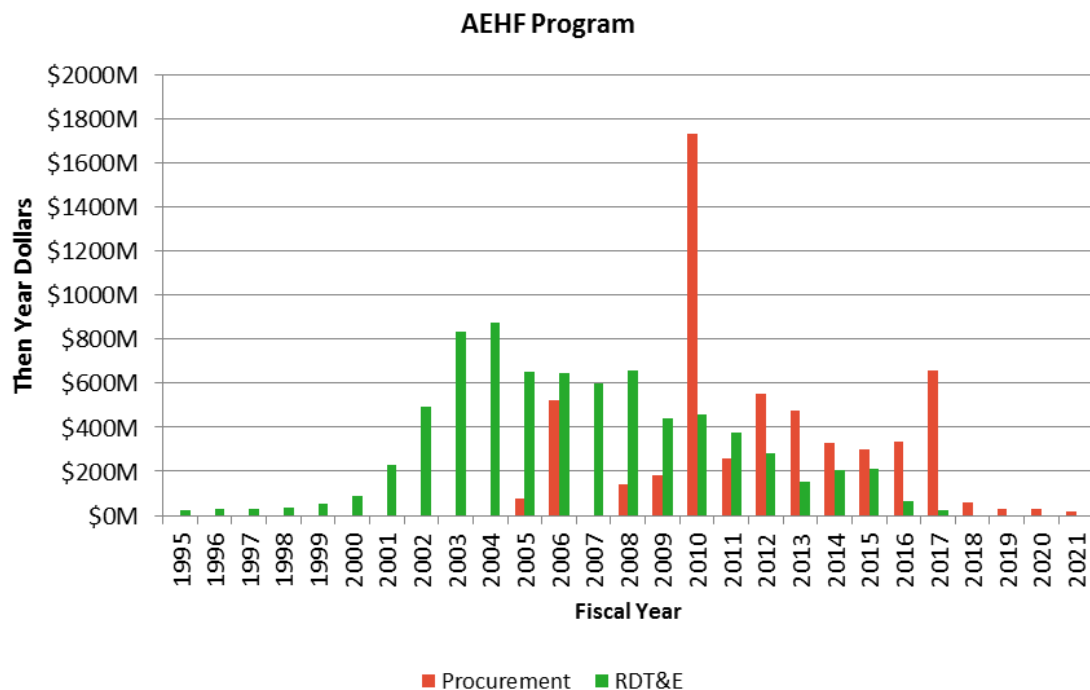
¹⁴⁶ Inside Defense, "RMS Solicitation," August 27, 2014, <http://insidedefense.com/201408272480167/Inside-Defense-Blog/Defense-Next/rms-solicitation/menu-id-73.html?s=dn>.

¹⁴⁷ Two RMS units were procured with RDT&E funding, but are not include in the quantity line.

SPACE SYSTEMS

Advanced Extremely High Frequency Satellite (AEHF)

AEHF is constellation of satellites that provide global, survivable, secure, and jam-resistant communications for tactical and strategic users. The program current plans to field six satellites in geosynchronous orbit. The program was funded in part by Canada, the Netherlands, and the United Kingdom, which in exchange will be able to use a portion of the constellation's capacity.¹⁴⁸ Three AEHF satellites are currently on orbit, and the fourth is scheduled for launch in 2017. Once the fourth satellite is operational, the system will have achieved full operational capability.¹⁴⁹ A total of \$11.4 billion has been appropriated through FY 2014, \$1.7 billion is requested over the FYDP, and \$48 million is planned for beyond the FYDP.

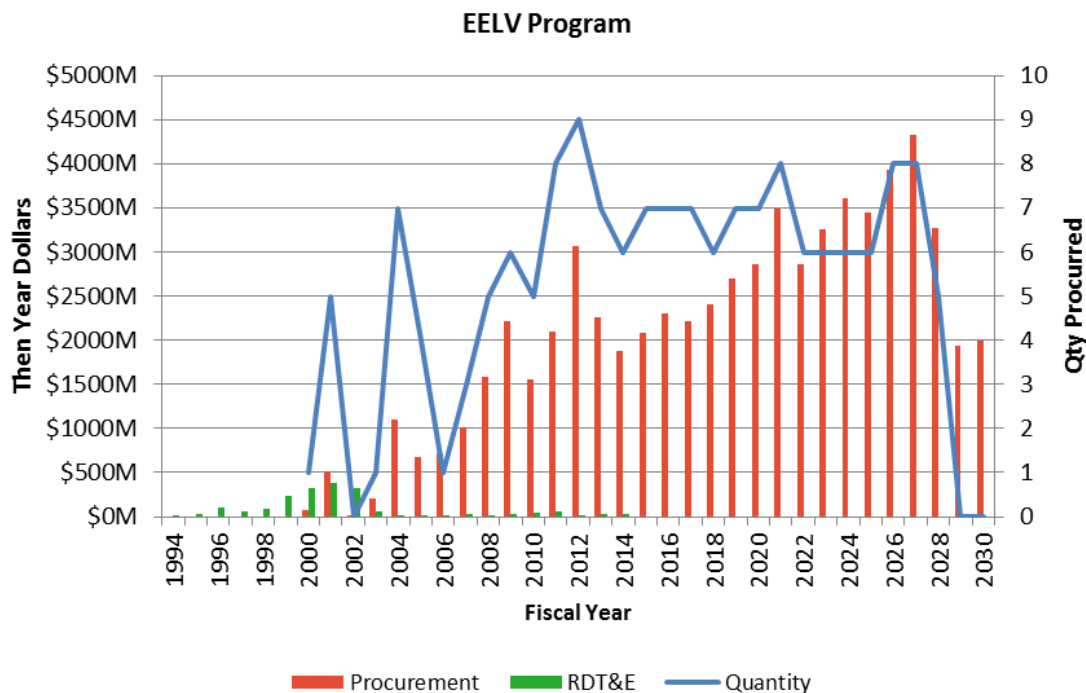


¹⁴⁸ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_01_AEHF_December2013SAR.PDF.

¹⁴⁹ Lockheed Martin. "Fourth AEHF Protected Communications Satellite Begins Integration Months Ahead of Schedule." April 2014, <http://www.lockheedmartin.com/us/news/press-releases/2014/april/0408-ss-aeHF4.html>.

Evolved Expendable Launch Vehicle (EELV)

The Air Force's EELV provides launch services to support the Department of Defense and other government missions. The United Launch Alliance is currently the sole provider of launch vehicles for the U.S. military and intelligence community, providing multiple configurations of the Atlas V and Delta IV launch vehicles. The Atlas V uses the Russian made RD-180 rocket motor, which could present a supply problem if Russian sanctions were to prevent the export of this item to the U.S. military. The Air Force has indicated that it may certify new providers, such as SpaceX and Orbital Sciences, to compete for future contracts.¹⁵⁰ A total of \$20.9 billion has been appropriated through FY 2014, and \$11.7 billion is requested over the FYDP for 34 launch vehicles. An additional \$35.0 billion is planned for beyond the FYDP for an additional 60 launch vehicles through FY 2028.¹⁵¹

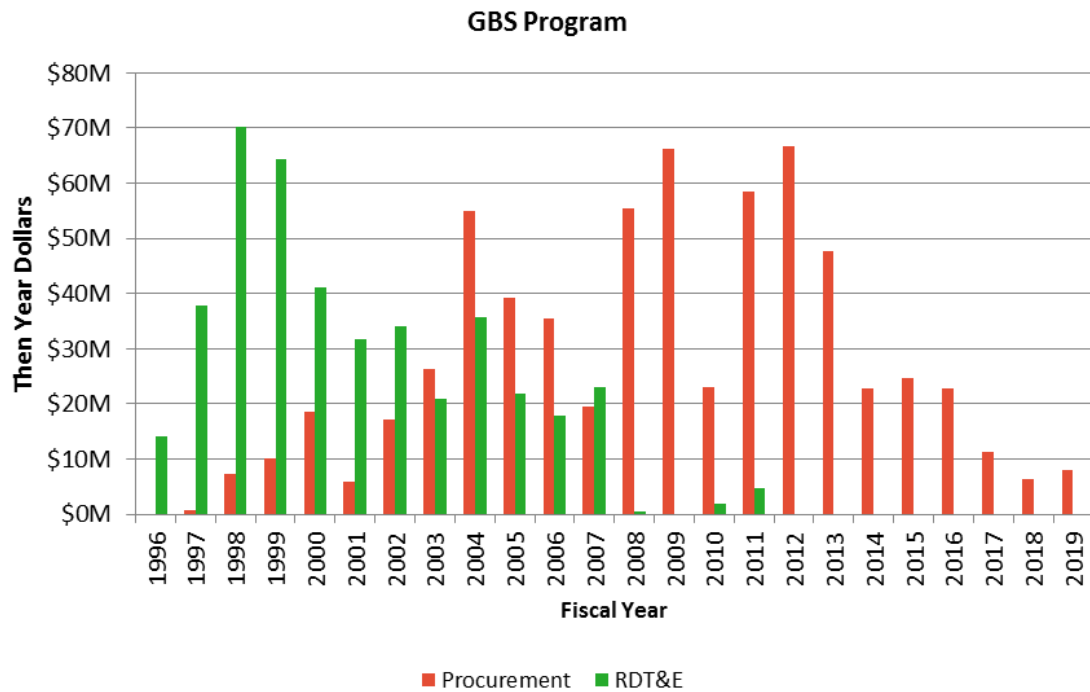


¹⁵⁰ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 63–64.

¹⁵¹ One EELV was procured with RDT&E funding, but is not included in the quantity line.

Global Broadcast Service (GBS)

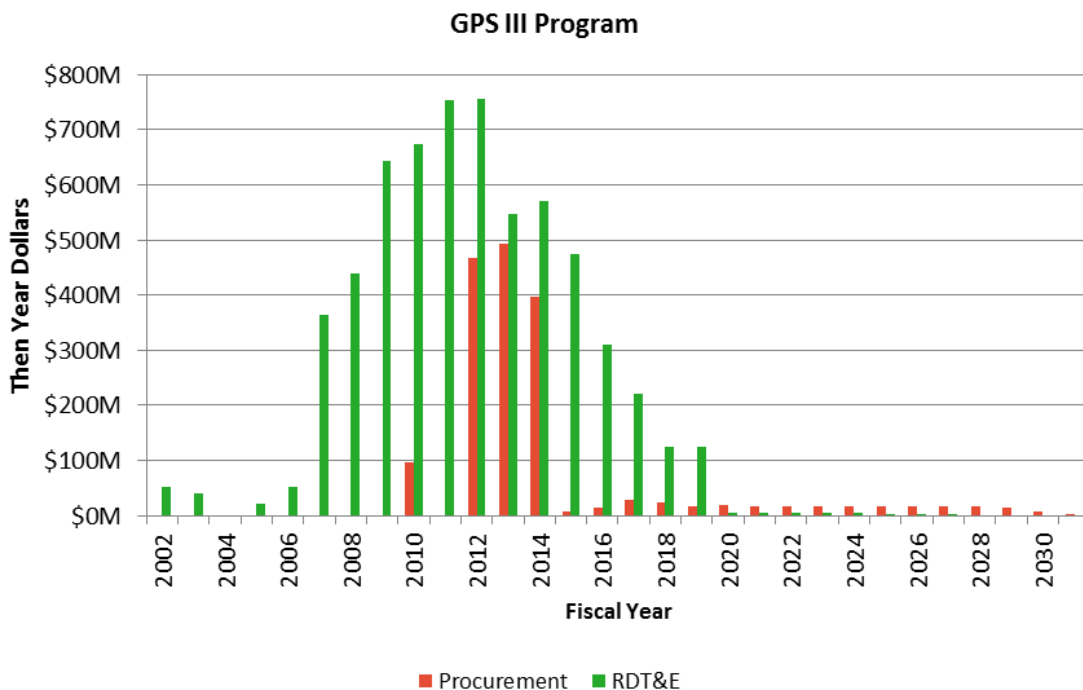
This Air Force program provides global, high-capacity, one-way transmission of video, imagery, and geospatial intelligence products supporting command centers and joint-combat forces. It utilizes available commercial technologies and can broadcast over GBS-payloads hosted on two Ultra-High Frequency Follow-On satellites, commercially leased transponders, and the Wideband Global SATCOM constellation.¹⁵² A total of \$1.0 billion has been appropriated through FY 2014 and \$73 million is requested over the FYDP for completion of the program.



¹⁵² DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_30_GBSDDecember2013SAR.PDF.

Global Positioning System III (GPS III) and Next Generation Operational Control System (GPS OCX)

The Air Force's GPS III program is developing a new generation of satellites to replace the existing GPS constellation. GPS III provides a high-gain antenna for the military signal (M-code) that increases the signal strength and makes it more resistant to jamming. The satellites also provide a new civilian signal (L2C) for improved accuracy. Due to late hardware deliveries and technical problems identified during testing, the first satellite launch has been delayed two years and is now scheduled for April 2016.¹⁵³ The GPS OCX program is developing a new satellite command and control (C2) ground system to support the GPS constellation and enable many of the new features in GPS III.¹⁵⁴ The costs reported in the SAR only cover the first eight GPS III satellites and the OCX ground segment.¹⁵⁵ A total of \$6.4 billion has been appropriated through FY 2014, \$1.3 billion is requested over the FYDP, and \$0.2 billion is planned for beyond the FYDP.



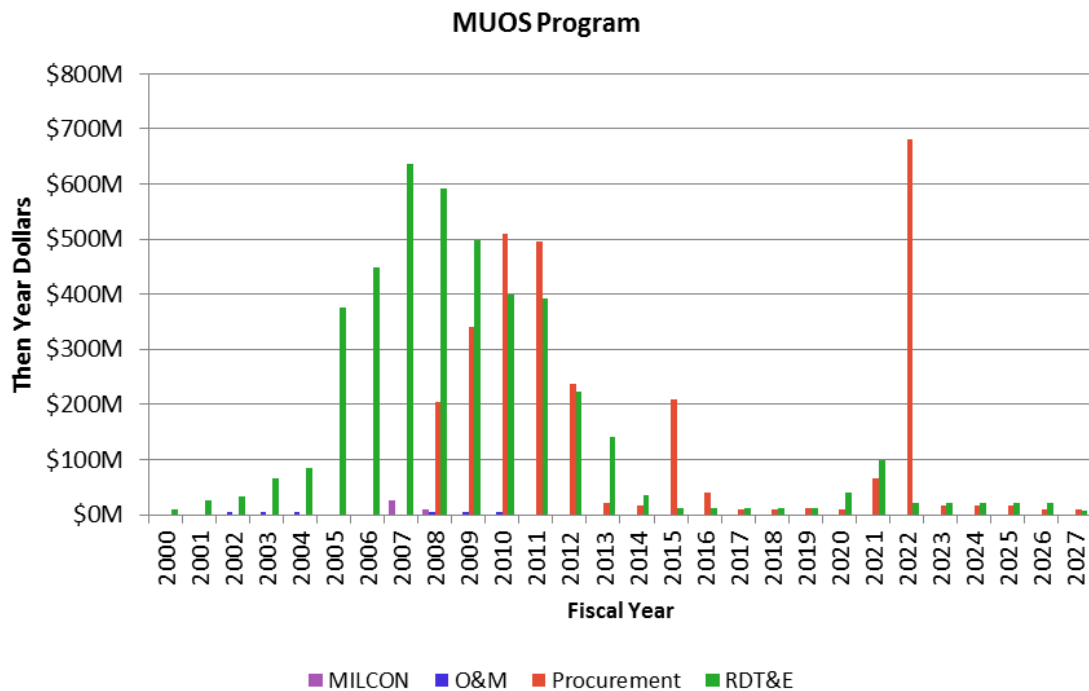
¹⁵³ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 75–76.

¹⁵⁴ DoD. *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_33_GPS_OCX_December2013SAR.PDF.

¹⁵⁵ The U.S. has committed to maintaining at least 24 operational GPS satellites 95% of the time, so the program will likely expand as additional legacy satellites have to be replaced. See GPS.gov, *Space Segment*, August 2, 2014, <http://www.gps.gov/systems/gps/space/>.

Mobile User Objective System (MUOS)

The Navy's MUOS satellite constellation is designed to provide increased narrowband SATCOM capacity for mobile and fixed-site users. It will replace the Ultra High Frequency Follow-On (UFO) satellite system currently in use. The MUOS program includes funding for both the space and ground control segments. Advanced MUOS capabilities are currently not available to users due to delays in developing the MUOS-compatible radios through the JTRS program. The first MUOS satellite was launched 26 months behind schedule in February 2012, and the second was launched in July 2013.¹⁵⁶ The third MUOS satellite is scheduled for launch in January 2015.¹⁵⁷ MUOS is expected to reach full operational capacity in 2017.¹⁵⁸ A total of \$5.8 billion has been appropriated through FY 2014, \$0.3 billion is requested over the FYDP, and \$1.1 billion is planned for beyond the FYDP.



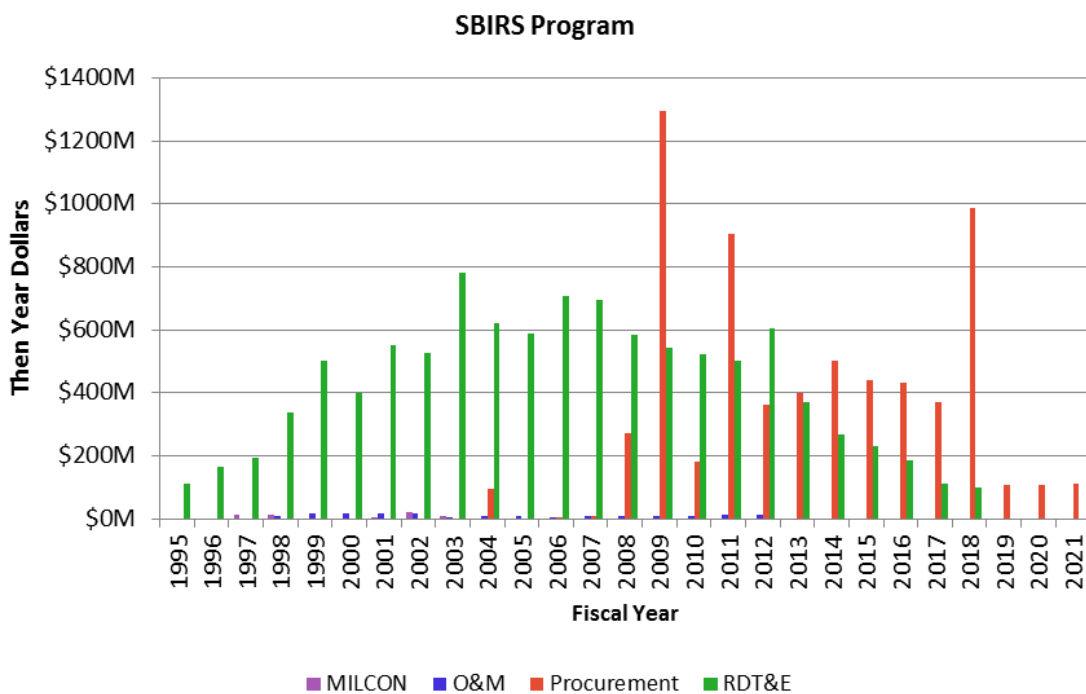
¹⁵⁶ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 97–98.

¹⁵⁷ Inside Defense, “MUOS-3 Satellite On Track for January Launch Despite Hardware Deficiency,” August 26, 2014, <http://insidedefense.com/201408222480089/Inside-Defense-Daily-News/DefenseAlert/muos-3-satellite-on-track-for-january-launch-despite-hardware-deficiency/menu-id-61.html?s=dn>.

¹⁵⁸ DoD, *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_58_MUOSDecember2013SAR.PDF.

Space Based Infrared System High (SBIRS High)

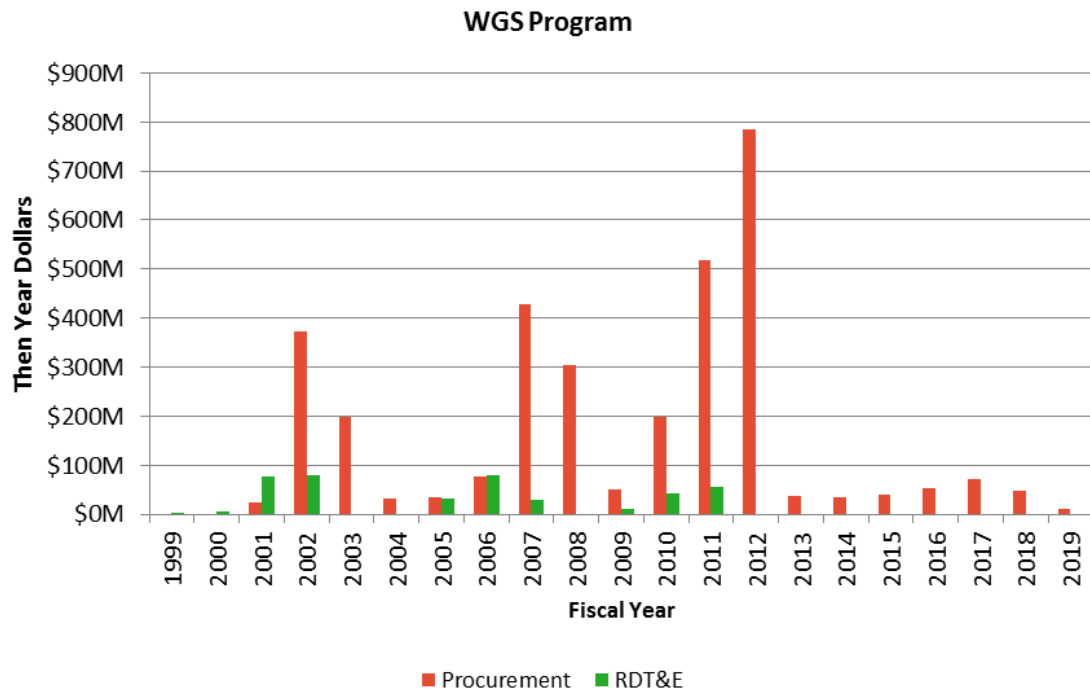
SBIRS is designed to replace the Defense Support Program to provide missile warning, technical intelligence, and battlespace awareness. The program includes four geostationary SBIRS satellites, two SBIRS hosted payloads on satellites in a highly elliptical orbit, two replenishment satellites and sensors, and fixed and mobile ground stations. The program has delivered and launched both hosted payloads and two of the geostationary satellites. One of the two replenishment sensors has also been delivered. The third geostationary satellite is scheduled for delivery in December 2015 and a fourth is also under construction.¹⁵⁹ A total of \$13.8 billion has been appropriated through FY 2014 for the program, \$3.0 billion is requested for the FYDP, and \$0.2 billion is planned for beyond the FYDP.



¹⁵⁹ GAO, *Defense Acquisitions of Selected Weapon Programs*, p. 143.

Wideband Global SATCOM (WGS)

This Air Force-led program, previously known as the Wideband Gapfiller System, provides DoD with its highest capacity communications satellites. The satellites are based on Boeing's commercial 702 satellite design.¹⁶⁰ Australia, Canada, Denmark, Luxembourg, the Netherlands, and New Zealand are providing funding to the U.S. in exchange for the right to use some of the WGS constellation's global capacity, which has enabled the Air Force to expand the constellation. Six WGS satellites are in orbit with three additional satellites in production.¹⁶¹ A total of \$3.5 billion has been appropriated through FY 2014, and \$0.2 billion is requested over the FYDP.



¹⁶⁰ Boeing, "Transformational Wideband Communication Capabilities for the Warfighter," 2014, http://www.boeing.com/boeing/defense-space/space/bss/factsheets/702/wgs/wgs_factsheet.page.

¹⁶¹ DoD, *FOIA Requester Service Center: Selected Acquisition Reports*, 2013, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_77_WGSDecember2013SAR.PDF.



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