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Navy F/A-18E/F Super Hornet and EA-18G Growler Aircraft: Background and Issues for Congress

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Summary

The F/A-18E/F Super Hornet is the Navy's highest priority aviation modernization program. It is replacing Navy F/A-18C/D Hornet combat aircraft.

The decision to undertake F/A-18E/F Super Hornet program was made during a period of great turbulence in Navy aviation modernization. During this time frame the Navy struggled to identify and implement the best way to modernize its aging fleet of F-14 fighters and A-6E attack aircraft. The A-12 program (a stealthy replacement to the A-6E) was terminated in January 1991. The AFX program, another proposed replacement for the A-6E, began in 1991, but was also terminated.

The principal alternative to the F/A-18E/F was a modest upgrade of the F-14 — a large, two-seat fighter designed in the 1960s, with potential air-to-surface attack capabilities. Some observers describe the F/A-18E/F as an upgraded and larger version of the F/A-18C/D, with increased range and payload capacity and more space and weight for future improvements. Others assert that the differences between the baseline Hornet aircraft and the E/F model are so great that they would describe the Super Hornet as an entirely new aircraft.

The Department of Defense is currently facing a shortage of radar and communications jamming capability. The Navy and Marine Corp's EA-6B *Prowlers* escort and protect Navy, Marine Corps and Air Force aircraft operating in hostile airspace. The Prowlers, however, are few and rapidly aging.[1] All the Services are evaluating preferred approaches to ameliorating this shortfall. The Navy's approach is to produce a new electronic attack aircraft based on the F/A-18F, called the EA-18G.

The Navy's FY2008 budget proposes to increase the overall purchase of F/A-18E/F aircraft by 22, for a total of 494. It also proposes reducing the overall purchase of EA-18G aircraft by 10, for a total of 80.

The Defense Department's Selected Acquisition Report (SAR) of September 30, 2006, estimated the acquisition cost of a 462-aircraft program at $44 billion. The cost of procuring 90 EA-18G electronic attack variants is estimated at $9 billion. The Super Hornet has been approved for international export, and Australia is reportedly poised to purchase 24 F/A-18E/Fs as a bridge to its purchase of Joint Strike Fighters. Key issues surrounding the program relate to the total number of Super Hornets to be procured.

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[1] For more information on the EA-6B and electronic warfare, see CRS Report RL30639, *Electronic Warfare: EA-6B Aircraft Modernization and Related Issues for Congress*, by Christopher Bolkcom.

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Introduction

The F/A-18E/F Super Hornet is the Navy's highest priority aviation modernization program, replacing rapidly aging F/A-18C/D Hornet combat aircraft.[2] It has been employed in conflicts in Afghanistan and Iraq and is currently in full rate production. Principal issues surrounding the program relate to the total number of Super Hornets to be procured.

Background

The decision to undertake the F/A-18E/F Super Hornet program was made during a period of great turbulence in Navy aviation modernization, when the Navy was struggling to identify and implement the best way to modernize its aging fleet of F-14 fighters and A-6E attack aircraft. The A-12 program (a stealthy replacement to the A-6E) was terminated in January 1991. The AFX program, another proposed replacement for the A-6E, began in 1991, but was also terminated. Efforts to develop a carrier-based naval version of the Air Force's F-22 Advanced Tactical Fighter were abandoned in 1991 and proposals for a carrier-capable version of the Air Force's F-117 were never endorsed by Navy leadership.

In the midst of these program starts and stops, the principal alternative to the F/A-18E/F (a major upgrade of the F/A-18, a smaller, one- or two-seat strike-fighter designed in the 1970s as a lower-cost supplement to the F-14) was a modest upgrade of the F-14: a large, two-seat fighter designed in the 1960s with potential air-to-surface attack capabilities.

Proponents of the F/A-18E/F argued that upgrading the F/A-18 to take over the F-14's air-to-air combat mission would cost less in procurement and operating expenses than upgrading the F-14 to take over the F/A-18's air-to-surface attack mission. Some also argued that the F-14's long-range air defense mission, known as the outer air battle, will be less important in the post-Cold War era, when naval aircraft are expected to be used at shorter ranges in littoral (off-shore) operations in

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[2] The Navy The F-35 Joint Strike Fighter (JSF) program, currently projected by Defense Department officials to produce up to 680 new fighter/attack planes for the Navy and Marine Corps, could yield operational aircraft in 2012 that will complement and eventually replace the F/A-18E/F.

Third-World scenarios. Competing upgrade options were proposed for both the F-14 and the F/A-18. In 1992, the House and Senate Armed Services Committees recommended development of both the F/A-18E/F and an attack-capable version of the F-14 (P.L. 102-484, Section 125).

The F/A-18E/F program began officially in May 1992 when the Defense Acquisition Board (DAB) approved the commencement of engineering/manufacturing development (EMD). On July 21, 1992, the Navy awarded two contracts to get EMD under way: McDonnell Douglas received $97 million from a $3,964-million contract to develop the airframe and General Electric received $94 million from a $754-million contract to develop the F414-GE-400 engine. On September 18, 1995, the Navy received the first of seven EMD aircraft to be flight-tested in 1995-98. By September 1997, these test planes had logged some 1,500 flight hours, with carrier-based flights beginning in January 1997 aboard the USS John C. Stennis.

Although derived from an existing aircraft, the F/A-18E/F suffered noteworthy developmental challenges. In 1996, flight testing was suspended when problems with the Super Hornet's engines caused the aircraft to be grounded. The Super Hornet fleet was grounded a second time in 1998 when engine problems resurfaced.

In December 1997, the F/A-18E/F's persistent performance problems in high-speed maneuvers led the Navy to delay FY1998 funding for the program, pending solution of these problems. First experienced in March 1996, the aircraft's "wing-drop" problem may occur during turns at speeds of .6 to .9 Mach (speed of sound), when the wing loses lift and the plane rolls unexpectedly to the left or right, preventing the pilot from tracking a target. Since this anomaly was apparently related to the wing's leading edge, some feared the wing might have to be redesigned; others thought the problem could be resolved by modifications of the wing, such as adding a "porous wing fairing." After successful flight testing of this modification, former Secretary of Defense Cohen approved FY1998 funding for procurement of another 20 aircraft on April 3, 1998.

The Defense Department's Quadrennial Defense Review (QDR) of May 19, 1997, recommended reducing procurement of F/A-18E/Fs from 1,000 aircraft to 548, with the possibility of buying up to 785 if the Joint Strike Fighter (JSF) program were delayed or if the aircraft were too expensive compared to the F/A-18E/F. Secretary Cohen stated that he hoped this change in the program would set up "creative tension" between the contractors producing the JSF and the F/A-18E/F. The QDR also recommended reducing the maximum annual production rate to 48 aircraft. These recommendations were reflected in the FY1999 budget's procurement projections.

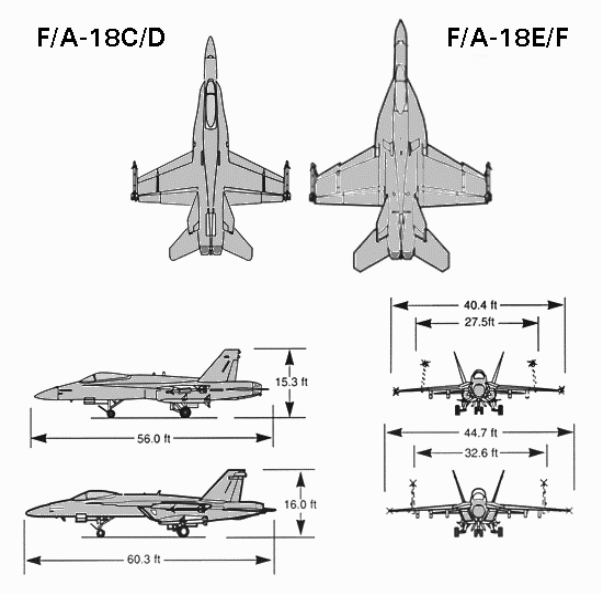
The F/A-18E/F Program

System Description

Some observers describe the F/A-18E/F as an upgraded and larger version of the F/A-18C/D, with increased range and payload capacity and more space and weight

for future improvements. Other observers assert that the differences between the baseline Hornet aircraft and the E/F model are so great that they would describe the Super Hornet as an entirely new aircraft. The single-seat F/A-18E and twin-seat F/A-18F will replace the single-seat C and twin-seat D versions of the F/A-18, which have been in production since 1986. Compared to the F/A-18C/D, the F/A-18E/F has a longer fuselage (+4.3 ft) and a 25% larger wing, providing 33% more internal fuel capacity (14,500 vs. 10,381 lb.); two additional weapon stations (11 vs. 9); and survivability improvements (e.g., new electronic warfare equipment and reduced vulnerable areas). The F/A-18E/F is powered by two upgraded F414-GE-400 engines (developed originally for the A-12), producing 36% more thrust than the C/D's F404 engines. Using 480-gal tanks increases the E/F's external fuel capacity to 9,800 lb. (vs. the C/D's 6,700 lb. with 330-gal tanks). The use of low-observable materials and shaping makes the E/F less detectable by radar than the C/D.

Figure 1. Comparison of F/A-18 Dimensions



In 1992, the F/A-18's operational requirements specified a combat radius of 410 nautical miles (nm, 1.15 statute miles) for fighter missions and 430 nm for attack missions. Such ranges were not achieved by the F/A-18C/D, whose range/payload capabilities have been reduced by weight growth due to equipment added in successive upgrades since 1982, when its combat radius was 366 nm in fighter missions and 415 nm in attack missions. In 1992 the Navy projected the F/A-18E/F's fighter combat radius to be about 420 nm, with an attack radius of about 490 nm — exceeding requirements of 410 nm and 430 nm for these missions.[3] In carrier landings, the F/A-18E/F is estimated to be able to bring back 9,000 lb of fuel/ordnance payload vs. the C/D's recovery payload of less than 6,000 lb.

[3] The December 31, 2005 SAR estimates the F/A-18E/F mission radii for fighter escort and interdiction missions to be 439nm and 468nm respectively.

These improvements in range, payload, and bring-back capability, are viewed by the Navy as the primary advantages of the E/F over the C/D. In 1996, the General Accounting Office seriously questioned the F/A-18E/F's performance advantages over the C/D variant, arguing that F/A-18C/Ds could provide similar capabilities at lower costs.[4] The Navy did not agree with these GAO conclusions, which were cited during Senate debate on the F/A-18E/F program in July 1996.

Table 1. Comparison of F/A-18 C/D and E/F

	C/D	E/F
Program Unit Acquisition Cost	$43 million[a]	$95.3 million[b]
Propulsion	2 F404-GE-402 turbofans	2 F414-GE-400 turbofans
Thrust	17,700 lbs	22,000 lbs
Speed	Mach 1.7	Mach 1.8
External fuel capacity	6,700 lbs	9,800 lbs
Approx. Un-refueled Combat Radius	Fighter: 366 nm Attack: 415 nm	Fighter: 420 nm Attack: 490 nm
Weapon hard points	9	11
First Flight	November 1978	December 1995

Notes:
a. Selected Acquisition Reports, Dec. 31, 1994, Department of Defense (DOD) Comptroller. Reflects a purchase of 1,026 aircraft. Figure is adjusted for inflation and expressed in 2006 dollars.
b. Selected Acquisition Reports, December 31, 2005. DOD Comptroller, assumes 462 aircraft purchase, does not include $9 billion estimate to procure 90 EA-18G variants.

The F/A-18E/F's radar will also differentiate it from earlier models. Under current plans, 419 of the Super Hornets procured by the Navy will be equipped with active electronically steered array (AESA) radar. Conventional radars are limited, in part, by the speed with which their antennas can be mechanically moved. Recent improvements in electronics technology enable AESA radars to update a radar's computer several times a second.[5] AESA radars are expected to offer up to 30 times the net radar capability of mechanically steered radars.[6] The hope is that they are more reliable than mechanically steered radars and are able to perform several different functions almost simultaneously.

Many believe that in addition to seeking out and locking on to enemy targets, AESA radars will also offer powerful electronic warfare capabilities, specifically the

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[4] U.S. General Accounting Office, *Navy Aviation: F/A-18E/F Will Provide Marginal Operational Improvement at High Cost*, GAO/NSIAD-96-98, June 1996.

[5] David Fulghum, "Cool, Small, Cheap Defines Flexible Next Generation Radar," *Aviation Week & Space Technology*, Sept. 11, 2000, p. 61.

[6] Report of the Defense Science Board Task Force on Future DOD Airborne High Frequency Radar Needs/Resources, April 2001, Office of the Under Secretary of Defense for Acquisition and Technology.

ability to jam enemy radars that attempt to target the F/A-18E/F.[7] It is currently unclear exactly how effective this jamming capability will be and if it will complement or compete with the electronic attack capabilities offered by the proposed EA-18G model. Other Super Hornet upgrades — Advanced Targeting Forward Looking Infrared (ATFLIR), Joint Helmet Mounted Cuing System (JHMCS), JDAM Hornet Autonomous Real-Time Targeting Capability, and, for the F model, the Advanced Crew Station — are hoped to combine with AESA to give the Super Hornet superior all weather precision attack capabilities against time-critical targets.[8]

Costs, Purchases and Schedule

The Defense Department's Selected Acquisition Report (SAR) of September 30, 2006, estimated the acquisition cost of a 462-aircraft program at $44 billion. The cost of procuring 90 EA-18G electronic attack variants is estimated at $9 billion. The Navy's FY2008 budget proposes to increase the overall purchase of F/A-18E/F aircraft by 22, for a total of 494. It also proposes reducing the overall purchase of EA-18G aircraft by 10, for a total of 80.

On December 7, 1998, the Defense Department announced the Navy's award of a contract to start production of the 30 aircraft funded in FY1999. Up to seven production aircraft began operational testing and evaluation (OT&E) flights in late May of 1999 at China Lake, CA, which continued through November 1999. In March 2000, Navy test squadron VX-9 reported that the F/A-18EF had passed its six month OT&E. The squadron flew 1,233 hours in 850 "missions," performed more than 24 carrier operations, and participated in a "Red Flag" exercise. Based on this successful operational evaluation, on June 16, 2000, the Navy announced the signing of a multi-year contract with Boeing Company for the F/A-18E/F full rate production. Under the five-year contract, the Navy agreed to pay $8.9 billion for 222 aircraft. The second F/A-18E/F multi-year procurement contract — estimated at $8.9 billion over five years to procure 210 aircraft — was awarded in December 2003.

The FY2008 defense budget projects the following annual buys:

	FY08	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**Total***
E/F	24	20	24	19	21	0	494
G	18	22	18	8	2	0	80

[7] Lorenzo Cortes, "AESA Allows Super Hornet to Perform Tactical Electronic Attack, Navy Official Says," *Defense Daily*, Dec. 4, 2002 and "New Sensors Grab Extra Combat Roles," *Aviation Week & Space Technology*, Sept. 11, 2000.

[8] "The F/A-18 & EA-18G." (Briefing) F/A-18 Deputy Program Manager for System Development. PEOTACAIR. July 19, 2005. Stephen Trimble, "Super Hornet Crews Ponder New Missions as Block II Upgrades Arrive," *Aerospace Daily*, Sept. 9, 2003 and Christopher Castelli, "Navy to Integrate JDAM HART with Super Hornet's AESA Radar," *Inside the Navy*, Oct. 13, 2003.

The first production aircraft were delivered in 1999 for operational testing and evaluation, with initial operating capability (IOC) achieved in 2001.

Sales, Operations, and Basing

In January 2007 it was reported that the Australian Air Force planned to purchase 24 F/A-18E/F aircraft, as an interim replacement for its aging F-111 bombers.[9] If this purchase is completed, it will be the first international sale of the Super Hornet, which was approved for export in June 2001.[10]

Malaysia, which currently operates the two-seat F/A-18D, appears to be a potential importer. On September 4, 2002, the Department of Defense (DOD) notified Congress of the potential sale of 18 F/A-18Fs to Malaysia as part of a larger $1.48 billion arms deal, but as of 2006 no sale has taken place.[11] The Indian government plans to import approximately 125 combat aircraft, and the F/A-18E/F has been discussed as a potential competitor for this contract.[12] Other potential F/A-18E/F importers include Australia, Bulgaria, Finland, Japan, Kuwait, Spain, and Switzerland.

Generally speaking, arguments for foreign military sales tend to focus on advancing U.S. industry, supporting allied countries, and promoting interoperability with those countries. Arguments against arms sales tend to focus on the negative aspects of military technology proliferation and the potential for causing regional instability. The government approves arms sales on a case-by case basis.[13] According to press reports, the Boeing Co., with assistance from the Navy, is aggressively marketing the Super Hornet for export.[14] Despite these efforts, international orders for the F/A-18E/F have not yet emerged. Some believe that a lack of international business is hindering Boeing's efforts to reduce the aircraft's price.[15]

Strike Fighter Squadron 115 (VFA-115), based at Naval Air Station Lemoore, CA, was the first fleet operational F/A-18E/F squadron. VFA-115 Super Hornets

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[9] Bradley Perrett. "RAAF Hedges JSF Bet with Super Hornet." *Aviation Week & Space Technology*. January 1, 2007.

[10] "Boeing's Super Hornet Cleared for International Sales," *Defense Daily,* Aug. 7, 2001.

[11] Michael Sirak, "Malaysia Seeks Super Hornets to Augment F/A-18 Fleet," *Jane's Defence Weekly,* Sept. 18, 2002.

[12] For more information, see CRS Report RS22148, *Combat Aircraft Sales to South Asia: Potential Implications*, by Christopher Bolkcom, Richard F. Grimmett, and K. Alan Kronstadt.

[13] For more information on arms sales, see CRS Report RS20757 and CRS Report RL31529 (out of print; for copies, contact author at 7-2577).

[14] Ron Laurenzo, "Boeing Hunts Abroad for Super Hornet Sales," *Defense Today*, Aug. 11, 2004 and Jason Ma, "Navy, Boeing Pitch Super Hornet for Potential International Sales," *Inside the Navy*, Oct. 4, 2004.

[15] Robert Wall, "Navy Commitment," *Aviation Week & Space Technology*, Jan. 5, 2004.

deployed in the summer of 2002 aboard the USS *Abraham Lincoln* (CVN-72). This 12-plane squadron flew approximately 90 missions over Afghanistan in support of Operation Enduring Freedom.[16] VFA-115 also deployed to the Persian Gulf region and participated in Operation Southern Watch, enforcing the "No-Fly Zones" over Iraq. In November 2002, F/A-18E/F aircraft used the Joint Direct Attack Munition (JDAM) to attack Iraqi surface-to-air missile systems and a command and control communications facility.[17] F/A-18E/F squadrons from the aircraft carriers Abraham Lincoln and Nimitz participated in Operation Iraqi Freedom.

On September 10, 2003, the Navy released its decision to base eight F/A-18E/F fleet squadrons and one fleet replacement squadron (120 aircraft) at Naval Air Station (NAS) Oceana, (VA), two fleet squadrons (24 aircraft) at Marine Corps Air Station (MCAS) Cherry Point (NC) and to construct an outlying field (OLF) in Washington County, NC.[18] The Washington County site for the OLF has proven controversial and the Navy is considering alternatives.[19]

EA-18G "Growler"

The Department of Defense is currently facing a shortage of radar and communications jamming capability. The Navy and Marine Corps' EA-6B *Prowlers* escort and protect Navy, Marine Corps, and Air Force aircraft operating in hostile airspace. The Prowlers, however, are few and rapidly aging.[20] All the Services are evaluating approaches to ameliorating this shortfall. The Navy's approach is to produce a new electronic attack aircraft based on the F/A-18F, called the EA-18G.

Basing the EA-6B's replacement on the F/A-18E/F airframe is attractive to the Navy because it is expected to engender less new training, operations and maintenance than a new type of aircraft. Operating an electronic attack aircraft that can fly at the same speed and to the same ranges as the strike aircraft it is supporting should also generate operational benefits. The Marine Corps does not operate, and currently does not plan to procure, the FA/18-E/F, so fielding the EA-18G is presumably less attractive to that Service. In January 2005 it was reported that the Marine Corps was embarking on a year-long study to determine the F-35's potential to replace the EA-6B.[21]

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[16] Tony Capaccio, "Boeing Super Hornet, New U.S. Fighter, Begins Patrols Over Iraq," *Bloomberg.com*, Oct. 31, 2002.

[17] "Super Hornets Make Combat Debut," *Defense Daily*, Nov. 8, 2002, p. 4.

[18] "Navy Issues Decision on Super Hornet Basing," *Immediate Release*, No. 663-03. Department of the Navy, Sept. 10, 2003.

[19] Kate Wiltrout, "Navy Says It Will Re-Examine Four Alternate Sites For OLF," *Norfolk Virginian-Pilot*, June 25, 2005.

[20] For more information on the EA-6B and electronic warfare, see CRS Report RL30639, *Electronic Warfare: EA-6B Aircraft Modernization and Related Issues for Congress*, by Christopher Bolkcom.

[21] Robert Wall, "U.S. Marines Realize Time Is Short to Draft EA-6B Follow-on Plan," *Aviation Week & Space Technology*, Jan. 3, 2005.

F/A-18F and EA-18G models are expected to be produced on the same production line starting in FY2008 and achieve initial operational capability (IOC) in September 2009. The EA-18G would share the F/A-18F's airframe and avionics and be built on the same assembly line. The EA-18G would replace the F-model's cannon with a nose-mounted jamming processor and carry up to five ALQ-99 jamming pods. These are the same jamming pods currently employed by the EA-6B. The Navy's currently envisioned program includes a total buy of 90 EA-18Gs — at a cost of $9 billion — to augment and replace the aging EA-6B force.

The Navy has awarded a $1 billion contract to Boeing for system design and development (SDD).[22] Procurement of 56 EA-18Gs by FY2009 is included in Boeing's second MYP contract (154 F/A-18E/Fs fill out the 210-aircraft contract). If 56 EA-18Gs are not approved, additional F/A-19E/Fs will be produced to maintain the contract's 42 aircraft per year minimum quantity. During FY2005 congressional action, authorizers and Senate appropriators expressed their concerns about the program's progress. (See Congressional Action section, below.)

Key Issues for Congress

The principal issues surrounding the program at this juncture relate to the total number of Super Hornets to be procured.

Number of Super Hornets to be Procured

Like other DOD tactical aviation programs (e.g., F-22A, RAH-66, JSF), the planned number of F/A-18E/F Super Hornets to be procured has decreased over time. The current plan is to procure 462 E/F models, about half of the originally planned quantity. Several factors could influence whether the planned procurement number continues to decrease or holds steady.

The Department of the Navy has recently implemented a Tactical Aviation Integration plan, which has reduced the planned number of Super Hornets and F-35s to be procured and fielded. If this integration of Navy and Marine Corps aviation appears successful, some may argue for further reductions in these aircraft. The potential retirement of the aircraft carrier *USS John F. Kennedy* could also spark discussion of aircraft reductions. Further in the future, the successful fielding of naval unmanned aerial vehicles (UAVs) for both surveillance and strike missions could compete with manned Navy aircraft for deck space. The most discussed factor, however, influencing the potential purchase of Super Hornets is the F-35 program.

The Navy and Marine Corps are both planning on procuring variants of the F-35 JSF. This aircraft is expected to be operational between 2012 and 2013. Some argue that the JSF will be a clearly more capable aircraft. It will be stealthy, employ advanced, integrated avionics, the most modern agile electronically scanned array

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[22] "Navy Awards Boeing $9.6 Billion in Super Hornet and EA-18G Contracts," Press Release, The Boeing Company, St. Louis, Dec. 29, 2003.

(AESA) radars, and is hoped to be cheaper to procure and operate than the Super Hornet. JSF proponents also argue that the F-35 will field, and that the F/A-18E/F lacks, advanced computing and communications capabilities that enable tomorrow's combat aircraft to fully participate in high speed collaborative targeting. Sharing and receiving targeting information from other sources appears central, JSF proponents argue, to effectively engaging challenging targets. Improved enemy air defenses suggest that the Navy field these kinds of strike fighter attributes quickly if it is to remain survivable and relevant on tomorrow's battlefield. In addition to these operational attributes, the JSF is hoped to be less expensive to procure and to operate than the Super Hornet.

JSF advocates argue that the F/A-18E/F program should be truncated, and that more resources should be invested in the JSF program. It makes little sense, they say, to continue purchasing two types of aircraft that perform essentially the same role, especially when one is clearly superior. The Super Hornet is a "compromise" program, JSF proponents say, designed to fill the void left by the cancelled A-12. It isn't as good a fighter aircraft as the F-14 Tomcat, nor it as good an attack aircraft as was the A-6E Intruder.

The ease with which the U.S. Air Forces have dominated its recent military opponents (e.g., Kosovo, Afghanistan, Iraq) suggest that the current inventory of F-14s and F/A-18C/Ds will continue to be effective until the JSF is fielded. Much can be saved by truncating the Super Hornet and buying the JSF in even greater numbers. Acting DOD acquisition chief Michael Wynne reportedly suggested that truncating the F/A-18E/F purchase in favor of the JSF could be considered if DOD had to reduce its tactical aviation procurement budget.[23]

While the Navy looks forward to the JSF's eventual deployment, F/A-18E/F proponents point out that it is still in development and there is no guarantee that it will be fielded on time. Many aviation programs, such as the C-17 Globemaster, RAH-66 Comanche, and the V-22 Osprey, take much longer to develop and procure than planned. The F/A-18E/F is a bird in the hand, its supporters say, and its rapid and continued procurement is essential to executing the Navy's current and evolving military strategy. In 2006 Navy leaders and the Senate Armed Services Committee supported the purchase of additional Super Hornets. In its mark-up of the FY2007 Defense Authorization Bill, the Committee noted

> the Navy will confront a sizeable gap in aircraft inventory as older F/A-18A-D Hornets retire before the aircraft carrier variant of the Joint Strike Fighter (JSF) is available.....The magnitude of the problem, and the procurement cost to avoid a shortfall in the carrier air wing force structure, is entirely dependent on when the Navy determines that its F/A-18A/Cs are at the end of their service life....the committee recommends that the Navy consider buying additional F/A-18E/Fs to

[23] Dave Ahearn, "Wynne Weighs Overlap of F/A-18, JSF Carrier Versions," *Defense Today*, Dec. 16, 2004.

mitigate the known shortfall, while allowing the Navy to transition to the JSF as soon as feasible.[24]

Super Hornet advocates argue that while the JSF will be a valuable contribution to the Navy inventory, its capabilities complement the F/A-18E/F rather than supercede it. It is not clear that stealth technology is required immediately and stealthy aircraft have not proven invulnerable in recent conflicts. Also, to maintain its stealthy signature, the JSF must carry its weapons internally, which limits its payload.

Proponents of the F/A-18E/F acknowledge that the plane lacks some of the F-14D's mission capabilities speed and all-weather attack capability and the A-6E's range/payload, but they argue that advances in weapons and targeting capabilities make up for these shortcomings. Further, they argue, the Super Hornet offers considerable upgrade potential. Modernizing the F/A-18E/F with software-programmable radios, computers and other networking equipment is relatively straightforward, proponents argue.

Congressional Action

The Bush Administration's **FY2008** budget requested $4,182 million ($4.1 billion) for F/A-18 aircraft.

Table 2. F/A-18E/F/G FY2008 Budget
($ millions)

	Procurement			RDT&E	
	$		#	$	
Request	*E/F* FY08	2,057.1	24	F/A-18 Squadrons	44.9
	E/F APCY	46.8	-	EA-18G	272.7
	G FY08	1,267.7	18		
	G APCY	51.1	-		
	Mods	441.9	-		

The administration's **FY2007** budget requested $3,658 million in procurement and $403.4 million in RDT&E funds for F/A-18 aircraft. Congressional action on this request is summarized in the table below. Adjustments to the request are highlighted with **bold** font.

[24] S. 2766 (109-254), May 9, 2006. p.111.

Table 3. F/A-18E/F/G FY2007 Budget

($ millions)

	Procurement			RDT&E	
	$		#	$	
Request	*E/F* FY07	2,288.3	30	F/A-18 Squadrons	31.1
	E/F APCY	53.0	-	EA-18G	372.3
	G FY07	865.4	12		
	G APCY	39.8	-		
	Mods	411.5	-		
Authorization Conference H.R. 5122 (109-702)	*E/F* FY07	2,288.3	30	F/A-18 Squadrons	**38.6**
	E/F APCY	53.0	-	EA-18G	372.3
	G FY07	865.4	12		
	G APCY	39.8	-		
	Mods	411.5	-		
Appropriation Conference H.R. 5631 (109-676)	*E/F* FY07	**2,507.2**	**34**	F/A-18 Squadrons	**39.5**
	E/F APCY	53.0	-	EA-18G	**373.7**
	G FY07	**608.0**	**8**		
	G APCY	39.8	-		
	Mods	**426.3**	-		

House authorizers added R&D funding to the F/A-18 account for composite missile launch improvement, digital electronic warfare system, and digital heads-up display upgrade.

The administration's **FY2006** budget requested $3,581.4 million in procurement and $497.8 million in RDT&E funds for F/A-18 aircraft. Congressional action on this request is summarized in the table below. Adjustments to the request are highlighted with **bold** font.

Table 4. F/A-18E/F/G FY2006 Budget

($ millions)

	Procurement			RDT&E	
	$		#	$	
Request	*E/F* FY06	2,736.2	38	F/A-18 Squadrons	88.7
	E/F APCY	86.1	-	EA-18G	409.0
	G FY06	310.2	4		
	G APCY	26.5	-		
	Mods	422.4	-		
Authorization Conference H.R. 1815 (109-360)	*E/F* FY06	**2,739.4**	38	F/A-18 Squadrons	88.7
	E/F APCY	86.1	-	EA-18G	409.0
	G FY06	310.2	4		
	G APCY	26.5	-		
	Mods	422.4	-		
Appropriation Conference H.R. 2863 (109-359)	*E/F* FY06	**2,740.2**	38	F/A-18 Squadrons	**87.4**
	E/F APCY	86.1	-	EA-18G	**400.0**
	G FY06	310.2	4		
	G APCY	26.5	-		
	Mods	**433.4**	-		

Both authorizers and appropriators added procurement funding for F/A-18E/F Shared reconnaissance pods (SHARP), and appropriators added funds for spare engines and modules. Appropriators cut EA-18G R&D funds due to program support costs, and reduced F/A-18 R&D funding due to program execution.

The administration's **FY2005** budget requested $3,406 million in F/A-18 procurement funds and $134 million in F/A-18 RDT&E. Congressional action on this request is summarized in the table below. Adjustments to the request are highlighted with **bold** font.

Table 5. F/A-18E/F/G FY2005 Budget

($ millions)

	Procurement			RDT&E	
	$		#	$	
Request	FY05	2,907.5	42	F/A-18 Squadrons	134.5
	APCY	78.3		EA-18G	357.5
	EA-18G APCY	8.2			
	Mods	412.5			
Authorization Conference H.R. 4200 (H.Rept. 108-767)	FY05	2,907.5	42	F/A-18 Squadrons	134.5
	APCY	78.3		EA-18G	357.5
	EA-18G APCY	**0.0**			
	Mods	412.5			
Appropriation Conference H.R. 4613 (H.Rept. 108-553)	FY05	2,907.5	42	F/A-18 Squadrons	**138.2**
	APCY	78.3		EA-18G	357.5
	EA-18G APCY	8.2			
	Mods	**420.9**			

House appropriators (H.Rept. 108-553, H.R. 4613) recommended eliminating EA-18G advance procurement because it believed the program to be overly aggressive and wanted the Navy to conduct more testing before acquisition (p.145). Increases to F/A-18 procurement (modifications) funded improvements to safety and targeting capabilities.[25] Increases to the F/A-18's RDT&E account funded improved displays, data recorders, and information systems.[26]

[25] H.R. 4613 (H.Rept. 108-553) p. 174.

[26] Ibid. p. 305.