

EXHIBIT R-2, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1999

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E1662 F/A-18 Improvements	45,858	95,583	169,129	118,174	86,874	20,823	36,467	25,191	0	3,268,488
E2065 F/A-18 RADAR Upgrade	2,272	0	3,943	91,526	78,721	91,432	62,876	39,269	31,033	688,071
E2130 F/A-18 Follow-On Variant	237,751	206,450	142,642	28,550	1,512	0	0	0	0	5,598,844
E2350 F/A-18F TAC RECCE	2,817*	0	0	0	0	0	0	0	0	2,817
TOTAL	288,698	302,033	315,714	238,250	167,107	112,255	99,343	64,460	31,033	9,558,220

*F/A-18F TAC RECCE effort executed in P.E. 0305207N starting in FY 1999.

Quantity of RDT&E Articles

10

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is capable of using external equipment to perform either fighter or attack missions. The capabilities of the F/A-18 weapon system can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued development capability is required to successfully optimize new F/A-18 weapon system capabilities in the Fleet. Additionally, continued improvements in reliability and maintainability are necessary to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

F/A-18 Improvements: The F/A-18 Naval Strike Fighter program transitioned from full-scale engineering development to operational systems development during FY 1983. As F/A-18 squadrons report discrepancies and new requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate Pre-Planned Product Improvements (P³I) (i.e., capability enhancements).

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The Active Electronically Scanned Array (AESA) development program, beginning in FY 2000, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, Synthetic Aperture Radar (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons significantly increases A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operating and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

F/A-18 Follow-On Variant: The follow-on F/A-18 (E/F version) is an airframe upgrade incorporating increased capabilities, performance, and survivability necessary to satisfy the 41% percent increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three 480 gallon drop tanks, four 1,000 pound bombs, and two AIM-9 air-to-air missiles. The E/F version will have increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It will retain all of the P³I enhancements developed for the earlier night attack C/D version of the aircraft.

F/A-18F TAC RECCE: The F/A-18F Shared Advanced Reconnaissance Pod (SHARP) Program develops podded systems to provide timely, accurate imagery intelligence. This system, when installed on an F/A-18F serves as the follow-on tactical air reconnaissance system to the interim F-14 Tactical Air Reconnaissance Pod System (TARPS). This program funds development of a unique F/A-18F podded reconnaissance system. This system includes electro-optical, infrared, and provisioning for synthetic SAR sensors to provide day/night, broad area coverage and high resolution images in over flight and at short and extended ranges. Imagery data is digitally recorded and can be data linked in near real time and/or returned to base for playback, analysis, processing, and storage. This effort is now funded in P.E. 0305207N (Manned Reconnaissance Systems) starting in FY 1999.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

E2350 F/A-18F TAC RECCE

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1998 ACCOMPLISHMENTS: (This effort is funded in P.E. 0305207N starting in FY 1999).

- (U) (\$1,000) Solicited and evaluated industry input.
- (U) (\$1,817) Developed draft ORD and program plans.

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PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E1662

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E1662 F/A-18 Improvements	45,858	95,583	169,129	118,174	86,874	20,823	36,467	25,191	0	3,268,488

Quantity of RDT&E Articles: Not Applicable

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a multi-mission strike fighter aircraft that is used in both fighter and attack roles through selected use of external equipment (fuel tanks, targeting/navigation, Forward Looking Infrared (FLIR) pods, and various bomb/missile launching racks). In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including the Positive Identification System (PIDS) (incorporates Congressionally mandated Combined Interrogator Transponder (CIT) Identification Friend or Foe (IFF) System), Digital Communications System (DCS), Joint Helmet Mounted Cueing System (JHMCS), Advanced Targeting Forward Looking Infrared (ATFLIR), conversion of the Operational Flight Program (OFP) to a Higher Order Language (HOL), development of the F/A-18F Advanced Crew Station, initiation of development efforts for Expand 4/5 providing high resolution maps to be displayed in the cockpit, and upgrade of the existing Global Positioning System/Inertial Navigation System in order to meet precision strike/precision approach requirements. Continued hardware/software development is required to successfully optimize fleet F/A-18 weapons systems. As F/A-18 Squadrons report system problems/requirements, a continuing capability is needed to perform technical evaluations/investigative flight testing, provide software support and integrate selected improvements.

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PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E1662

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1998 ACCOMPLISHMENTS:

- (U) (\$1,441) Continued to conduct engineering analysis and development improvements to existing systems and subsystems for deficiencies identified during deployment of the aircraft. Provided technical support for the integration of new weapons and systems.
- (U) (\$44,417) Continued development of DCS, PIDS, ATFLIR, and JHMCS.

2. FY 1999 PLAN:

- (U) (\$2,684) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.
- (U) (\$4,548) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include Multifunctional Information Distribution System (MIDS), AIM-9X, Embedded Global Positioning System/Inertial Navigation System (EGI), and Tactical Air Moving Map Capability (TAMMAC). Continue to investigate deficiencies and develop corrective action.
- (U) (\$39,668) Continue development of DCS, PIDS, and JHMCS. Complete Phase I of BOL CHAFF wing tip certification on F/A-18 C/D.
- (U) (\$47,108) Continue ATFLIR development. Commence conversion of the OFP to a HOL.
- (U) (\$1,575) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

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PROJECT TITLE: F/A-18 IMPROVEMENTS

3. FY 2000 PLAN:

- (U) (\$1,486) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.
- (U) (\$16,200) Continue development and testing of DCS, JHMCS, and PIDS.
- (U) (\$145,911) Continue ATFLIR development. Continue conversion of the OFP to a HOL and initiate development efforts for the F/A-18E/F Advanced Crew Station, Expand 4/5, and Precision Navigation.
- (U) (\$5,532) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, AIM-9X, and TAMMAC. Continue to investigate deficiencies and develop corrective action.

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PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) FY 1999 President's Budget:	45,601	97,198	130,075
(U) Appropriated Value:	47,110	97,198	
(U) Adjustments from President's Budget	+257	-1,615	+39,054
(U) FY 2000 President's Budget Submit:	45,858	95,583	169,129

CHANGE SUMMARY EXPLANATION:

(U) Funding: The net increase of \$257 thousand in FY 1998 reflects an increase to the Positive Identification System (PIDS). The net decrease of \$1,615 thousand in FY 1999 reflects a \$1,000 thousand reprogramming to the VECTOR Program, and a decrease of \$615 thousand for minor pricing adjustments. The net increase in FY 2000 of \$39,054 provides funding for continued development of the Advanced Targeting Forward Looking Infrared (ATFLIR) System, initiation of conversion of the Operational Flight Program (OFP) to a Higher Order Language (HOL), development of the Aft Crew Station for the F/A-18E/F, an increase in NWCF rates, and reduced escalation rates.

(U) Schedule: Not applicable.

(U) Technical: Not applicable

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PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
APN-1 (E/F)	224,350	416,369	382,960	618,946	743,415	842,452	891,283	982,941	3,610,694
APN-5	70,510	134,535	210,428	242,343	220,974	233,362	220,944	215,678	Cont.

Related RDT&E

- (U) P.E. 0207163N Advanced Medium Range Air-to-Air Missile (AMRAAM)
- (U) P.E. 0604727N Joint Stand-off Weapon (JSOW) System
- (U) P.E. 0604270N EW Development
- (U) P.E. 0604777N Navigation ID System, project X0921, NAVSTAR GPS equipment

(U) D. ACQUISITION STRATEGY: The F/A-18 Improvements program consists of nine separate development projects. The major programs within the F/A-18 Improvements Line are as follows:
PIDS. PIDS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Will be bought as CFE through the prime contractor.
ATFLIR. The ATFLIR development was a sole source incentive fee contract to Boeing. Boeing competed the development contract. The procurement supplier is planned to be sole source to Boeing.
Higher Order Language (HOL). The conversion of the Operational Flight Program software to HOL will be accomplished by the F/A-18 Advanced Weapons Laboratory at China Lake as the designated Software Support Activity for the F/A-18. The design of the software will be accomplished by Boeing under the sole source Technical Direction Letter contract at China Lake. As the Prime contractor for the aircraft, Boeing is the design agent for software of aircraft in production.
Advanced Crew Station. The design and development of the Advanced Crew Station modification will be sole source to Boeing as the Prime aircraft contractor.

(U) E. SCHEDULE PROFILE: (not applicable)

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PROJECT NUMBER:

E1662

PROJECT TITLE:

F/A-18 IMPROVEMENTS

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
PIDS/DCS Development/Integration	SS/CPFF/FFP	MDA St. Louis, MO	79,938	22,830	11/98	11,390	11/99	1,397	115,555	115,555
DCS E&MD	SS/FFP	Rockwell-Collins Cedar Rapids, IOWA	16,196	0		0		0	16,196	16,196
ATFLIR E&MD	CPIF/AF	MDA St. Louis, MO	10,079	31,900	11/98	75,200	11/99	25,945	143,124	143,124
ATFLIR AWARD FEE (Note 1)				(2,110)		(1,179)		(1,493)		
Misc. Development Efforts	Various	Other Contracts	5,284	1,200		800		1,200	8,484	8,484
JHMCS E&MD	MIPR	WPAFB Dayton, OH	5,000	2,462	11/98	788	11/99	425	8,675	8,675
Software Development Engineering	WX	NAWCWD China Lake, CA	38,766	21,414	10/98	70,475	10/99	244,203	374,858	
Misc. Product Development	WX	Other Field Activities	2,627	606	10/98	345	10/99	340	3,573	
Subtotal Product Development			157,890	80,412		158,998		273,510	670,810	

Remarks Note 1: Award Fees included in the total contract value (Award fees are non-add)

Subtotal Support Not Applicable	0	0	0	0	0
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PROJECT TITLE: F/A-18 IMPROVEMENTS

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 1999		FY 2000		Cost to Complete	Total Cost	Target Value of Contract
				FY 1999 Cost	Award Date	FY 2000 Cost	Award Date			
Product T&E Summary	WX	NAWCAD Patuxent River, MD	40,493	10,666	10/98	8,466	10/99	6,598	66,223	
Subtotal Test & Evaluation			40,493	10,666		8,466		6,598	66,223	
Contractor Support/Travel/Misc	Various	NAVAIR Patuxent River, MD	6,560	2,930	11/98	1,665	11/99	7,421	18,576	
Subtotal Management Services			6,560	2,930		1,665		7,421	18,576	
FY92 & Prior			2,511,304						2,511,304	
SBIR Assessment				1,575						1,575
Total Cost			2,716,247	95,583		169,129		287,529	3,268,488	

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PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2065

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: RADAR UPGRADE

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E2065 F/A-18 Radar Upgrade	2,272	0	3,943	91,526	78,721	91,432	62,876	39,269	31,033	688,071

Quantity of RDT&E Articles: Not Applicable

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Active Electronically Scanned Array (AESA) development program, beginning in FY 2000, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, SAR imagery, SAR TLE, and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons significantly increases A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operating and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

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PROJECT NUMBER: E2065

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: RADAR UPGRADE

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1.

1. FY 1998 ACCOMPLISHMENTS:

- (U) (\$2,272) Conducted RUG Phase II Follow-on Test and Evaluation.

2.

2. FY 1999 PLAN: Not applicable.

3. FY 2000 PLAN:

- (U) (\$2,900) Conduct Pre E&MD AESA Radar development.
- (U) (\$643) Commence Software Development and Integration efforts.
- (U) (\$350) Commence Radar Development/Planning.
- (U) (\$50) Start Test & Evaluation planning phase.

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PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: RADAR UPGRADE

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) FY 1999 President's Budget:	2,244	0	0
(U) Appropriated Value:	2,330	0	0
(U) Adjustments from 1999 President's Budget	+28	0	+3,943
(U) FY 2000 President's Budget Submit:	2,272	0	3,943

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY1998 increase of \$28 thousand properly funds RUG Phase II requirements in it's last year of development. The FY 2000 increase of \$3,943 thousand consists of a beginning AESA development program.

(U) Schedule: Not applicable.

(U) Technical: Not applicable

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PROJECT TITLE: RADAR UPGRADE

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
APN-5*	15,112	19,546	42,211	18,946	19,899	4,284	10,275	8,851	93
APN-1C/D*	20,896								
APN-1E/F	54,204	85,671	90,509	105,164	119,815	181,149	198,268	234,547	1,162,072

Related RDT&E

(U) P.E. 0603261N Tactical Airborne Reconnaissance (TAC RECCE)

P.E. 0204136N F/A-18 Squadrons (Project E1662: F/A-18 Improvements – Higher Order Language, Aft Crew Station Upgrade)

(U) D. ACQUISITION STRATEGY: The AESA program employs a two-phase approach with sole source contracts to the airframe prime manufacturer, Boeing. Phase I will be a moderate risk reduction phase conducted in FY 1999 and FY 2000. During this phase, Boeing will conduct competitive source selection at the radar system subcontract level. A BOA order for RFP development and subcontractor selection will be made to conduct this effort. It will include an “845” agreement for prototype development, which includes commercial development/amortization provisions. Conducting the competition early in the program allows for focused risk reduction and contractor investment.

Phase II will consist of a typical E&MD program and development contract. The program transitions to Phase II with a successful Milestone II decision in FY 2001. Once the program enters production, the “845” agreement allows the contractor to amortize unreimbursed development costs into the production unit cost. This strategy fully utilizes acquisition reform initiatives such as: early partnering with industry; alpha contracting; leveraging industry investment; optimizing use of COTS and NDI; cost as an independent variable; and electronic data deliverables.

*RUG Phase I & Phase II

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PROJECT TITLE: RADAR UPGRADE

(U) E. SCHEDULE PROFILE:

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>TO COMPLETE</u>
(U) Program Milestones			1Q/PRE E&MD	3Q/06 MS-III
(U) Engineering Milestones			3Q/PDR	
(U) T&E Milestones		2Q/TECHEVAL PHASE II 3Q/FOT&E PHASE II		
(U) Contract Milestones				

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PROJECT NUMBER:

E2065

PROJECT TITLE:

F/A-18 RUG

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
AESA Radar Contract	SS/TBD	BOEING St. Louis, MO	0	0		2,900	11/99	305,802	308,702	308,702
AESA Radar Software Development/Integration	WX	NAWCWD China Lake, CA	0	0		643	10/99	59,503	60,146	
AESA Radar Development	WX	NAWCAD Patuxent River, MD	0	0		50	10/99	4,460	4,510	
RUG PHASE I	SS/LTR(FPIF)	MDA St. Louis, MO	171,000	0		0		0	171,000	171,000
RUG PHASE II	CPIF	MDA St. Louis, MO	51,729	0		0		0	51,729	51,729
RUG PHASE II Integration	CPFF	MDA St. Louis, MO	11,000	0		0		0	11,000	11,000
Subtotal Product Development			233,729	0		3,593		369,765	607,087	
AESA Test & Evaluation	WX	NAWCAD Patuxent River, MD	0	0		50	10/99	4,460	4,510	
AESA Radar OPEVAL	WX	OPTEVFOR Norfolk, VA	0	0		0		10,621	10,621	

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F/A-18 RUG

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
RUG Upgrade Test & Evaluation	WX	NAWCWD China Lake, CA	48,014	0		0		0	48,014	
RUG UPGRADE OPEVAL	WX	COMOPTVFOR	1,799	0		0		0	1,799	
RUG Upgrade Test & Evaluation	Various	Other Field Activities	4,815	0		0		0	4,815	
Subtotal Test & Evaluation			54,628	0		50		15,081	69,759	
AESA Contractor Support /Travel/Misc	Various	NAVAIR Patuxent River, MD	0			300	10/99	8,962	9,262	
RUG Contractor Support/Travel/Misc	Various	NAVAIR Patuxent River, MD	1,963	0		0	0	0	1,963	
Subtotal Management Services			1,963	0		300		8,962	11,225	
Total Cost			290,320			3,943		393,808	688,071	

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 1999

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2130

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E2130 Follow-On Variant	237,751	206,450	142,642	28,550	1,512	0	0	0	0	5,598,844

Quantity of RDT&E Articles

10

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a twin-engine, mid-wing, multi-mission, tactical aircraft employed in Navy and Marine Corps strike fighter squadrons. The F/A-18, through selected use of external equipment is designed for flexibility in fighter, attack, fleet air defense, and close air support roles. The F/A-18 E/F variant is an upgrade to the night attack "C" and "D" models. The F/A-18E/F will be the second major upgrade since the program's inception. The F/A-18 continues to adapt its strike fighter role to evolving threats into the next century. The F/A-18E/F E&MD program is under a Congressional mandated cost cap of \$4.883B FY90 dollars. Pre-development efforts of \$36.6M (in FY90 base year dollars), previously funded under the F/A-18 C/D program, is reflected in the RDT&E total, but is not included in the approved \$4.883B development cap.

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DATE: February 1999

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2130

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1998 ACCOMPLISHMENTS:

- (U) (\$139,792) Continued engineering and manufacturing design activity in support of developmental flight test.
- (U) (\$8,651) Continued to develop ground test support for integration; conducted Navy Program Review (NPR); completed engine Full Production Qualification (FPQ), and continued to procure GFE items required for developmental efforts.
- (U) (\$87,308) Continued developmental flight testing; completed Developmental Test and Evaluation (DT-IIB) testing; started DT-IIC; started Operational Test & Evaluation (OT-IIA and OT-IIB).
- (U) (\$2,000) Begin Test Program Set (TPS) development.

2. FY 1999 PLAN:

- (U) (\$137,490) Continue engineering and manufacturing design activity in support of developmental flight test.
- (U) (\$3,108) Continue to develop ground test support for integration as well as ongoing test and evaluation efforts.
- (U) (\$56,106) Continue developmental flight testing, begin and complete DT-IID (TECHEVAL), and start DT-IIE and OT-IIC (OPEVAL).
- (U) (\$6,000) Continue Test Program Set (TPS) development.
- (U) (\$3,746) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

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DATE: February 1999

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2130

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

3. FY 2000 PLAN:

- (U) \$87,200) Complete engineering and manufacturing design activity in support of developmental flight test and prepare for Milestone-III (MS-III) Decision Acquisition Board (DAB).
- (U) (\$3,587) Continue ground testing support for integration as well as ongoing test and evaluation efforts.
- (U) (\$41,855) Complete DT-IIE and OT-IIC (OPEVAL) and start OT-IIIA.
- (U) (\$10,000) Continue Test Program Set (TPS) development.

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PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2130

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) FY 1999 President's Budget:	260,068	216,607	145,214
(U) Appropriated Value:	241,536	216,607	
(U) Adjustments from 1999 President's Budget:	-22,317	-10,157	-2,572
(U) FY 2000 President's Budget Submit	237,751	206,450	142,642

CHANGE SUMMARY EXPLANATION:

(U) Funding: The net decrease of -\$22,317 thousand in FY 1998 represents a reversal of anticipated reprogramming for EMD assumed in the President's Budget and -\$3,683 thousand for reprogramming to other priorities. FY 1999 net decrease of -\$10,157 thousand is the result of -\$1,000 thousand for BTR 63105 for the VECTOR program, a -\$5,000 thousand congressional adjustment, a -\$498 thousand revised economic assessment and a -\$3,659 balancing adjustment. The decrease in FY2000 of -\$2,572 thousand is the result of an inflation adjustment of -\$2,070 thousand and -\$502 thousand for balancing adjustments.

(U) Schedule: FY1998 Full Production Qualification (FPQ) 4Q/98 moved to 1/Q99 to allow the test team time to fully develop the planned corrections required to address the F414 pop stall issues.

(U) FY 1999 Navy Program Review (NPR) 1Q/99 moved to 2Q/99 to allow for completion of F414 FPQ which was the last remaining exit criteria.

(U) Schedule: FY1998 1Q/OT-IIA, 3Q-4Q/OT-IIB were left off the FY 1999 President's Budget submit in error. The LRIP Contract Milestones were removed from the RDT&E Budget and are reflected in the F/A-18E/F APN budget.

(U) Technical: Not Applicable.

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DATE: February 1999

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT NUMBER: E2130
PROJECT TITLE: FOLLOW-ON VARIANT

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1998</u> <u>Budget</u>	<u>FY 1999</u> <u>Budget</u>	<u>FY 2000</u> <u>Estimate</u>	<u>FY 2001</u> <u>Estimate</u>	<u>FY 2002</u> <u>Estimate</u>	<u>FY 2003</u> <u>Estimate</u>	<u>FY 2004</u> <u>Estimate</u>	<u>FY 2005</u> <u>Estimate</u>	<u>To</u> <u>Complete</u>
(U) A/C QTY	20	30	36	42	48	48	48	48	216
(U) APN1	2,106,362	2,870,628	2,854,229	2,890,594	3,073,708	3,105,247	3,242,645	3,344,223	14,057,797
(U) APN6	80,246	101,087	69,543	129,531	125,744	51,403	54,330	79,650	243,749

Related RDT&E

- (U) PE 0207163N (AMRAAM)
- (U) PE 0604727N (Joint Standoff Weapon System) (JSOW)
- (U) PE 0604270N (EW Development)
- (U) PE 0604777N (Navigation/ID System)
- (U) PE 0305141D (Joint UAV)
- (U) PE 0603261N (Tactical Airborne Reconnaissance)
- (U) PE 0204163N (Fleet Communications)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 1999

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PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2130

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

(U) D. ACQUISITION STRATEGY: The July 1992 award of the two RDT&E,N contracts to MDA (airframe) and General Electric (engine), both sole source cost plus incentive fee/award fee, effectively initiated the F/A-18E/F E&MD program. The airframe and engine contracts are incrementally funded through FY00 and FY99, respectively. In March 1997, the F/A-18E/F program received approval to enter the Low Rate Initial Production (LRIP) phase. The airframe and engine contracts for this phase are Cost Plus Incentive Fee (CPIF) for LRIP I and Fixed Price Incentive Fee (FPIF) for LRIP II and LRIP III. LRIP III is a priced option to the LRIP II contract. The LRIP II/III contract possesses a common incentive profit structure which affords contractors maximum opportunity to implement quality, reliability, and producibility improvements. Benefits of the F/A-18E/F LRIP contracts include: 1) a measurable profit incentive across the LRIP period of performance; 2) commercial-like long time relationship with contractors which tie customer (fleet) satisfaction to long term profitability; 3) progressive assumption of risk by the contractors; 4) a single negotiation for LRIP II and III.

(U) E. SCHEDULE PROFILE

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) Program Milestones	3Q/NPR	2Q/NPR	2Q/MS-III 4Q/IOC
(U) Engineering Milestones		1Q/ENG FPQ	
(U) T&E Milestones	1Q/OT-IIA 3Q-4Q/OT-IIB 3Q-4Q/DT-IIC	1Q-2Q/ DT-IIID (TECHEVAL) 3Q/99 -1Q/00 OT-IIC (OPEVAL)	
(U) Contract Milestones			

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EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS

DATE: February 1999

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2130

PROJECT TITLE: FOLLOW-ON VARIANT

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	Cost to Complete	Total Cost	Target Value of Contract
OPEVAL	WX	OPTEVFOR Norfolk, VA	2,411	12,704	11/98	0		0	15,115	
Flying Qualities and Performance	MIPR	NASA Langley, AFB	7,156	0		0		0	7,156	
Integrated Test Team	WX	NAWCAD Patuxent River, MD	239,064	36,851	11/98	36,586	10/99	16,645	329,146	
Wind Tunnel	MIPR	Arnold Eng Development Center(AEDC) Tullahoma, TN	33,751	2,000	11/98	2,000	10/99	0	37,751	
Misc Test & Evaluation	Various	Other Field Activities	13,219	0		0		0	13,219	
Subtotal Test & Evaluation			295,601	51,555		38,586		16,645	402,387	
Contractor Support/Travel/Misc	Various	NAVAIR Patuxent River, MD	45,673	5,631	11/98	4,241	10/99	3,745	59,290	
Subtotal Management			45,673	5,631		4,241		3,745	59,290	
SBIR Assessment				3,746					3,746	
Total Cost			5,219,690	206,450		142,642		30,062	5,598,844	

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