CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMEN	CLATURE		
RESEARCH DEVELOPMENT TEST & EVALUATION	ON, NAVY /	BA-7			0204136N F/A-1	18 SQUADRONS		
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	252.854	210.489	179.047	123.041	50.314	11.422	10.997	11.164
E1662 F/A-18 Improvements	137.412	95.079	69.032	44.463	14.701	11.422	10.997	11.164
E2065 F/A-18 RADAR Upgrade	114.294	104.481	110.015	78.578	35.613			
E2130 F/A-18 Follow-On Variant	1.148							
E9267 F414 Engine Durability Improvements		6.832						
E9268 APG-73 Radar Upgrade		4.097						

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).

F/A-18 Radar Upgrade: The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program, beginning in FY 1999, 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.

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Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2, page 1 of 45)

CLASSIFICATION:

	EXHIBIT R-2, RDT&E Budget Item Justification	DATE:
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 has increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It retains all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft. F414 Engine Durability Improvements: The F414-GE400 used on the F/A-18 E/F aircraft, is a low bypass turbofan engine, with augmented thrust provided by the afterburner. The engine is 155.5 inches long, weighs 2,445 lbs. and has an inlet diameter of 30.6 inches. The engine is rated at 14,770 lbs. thrust at the max power throttle setting without the afterburner, and 21,890 lbs. of thrust at the max afterburner throttle setting given standard day settings of 59°, 0% humidity, and sea level static conditions. AN/APG-73 Radar Upgrade: The AN/APG-73 radar will alleviate Electronic CounterCountermeasures (ECCM) deficiences noted in AN/APG-65 radar. The AN/APG-73 design incorporates hardware and software upgrades which increase ECCM effectiveness and provide growth potential for advance ECCM capabilities. AN/APG-73 provides significant improvements in resolution,		February 2003
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 has increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It retains all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft. F414 Engine Durability Improvements: The F414-GE400 used on the F/A-18 E/F aircraft, is a low bypass turbofan engine, with augmented thrust provided by the afterburner. The engine is 155.5 inches long, weighs 2,445 lbs. and has an inlet diameter of 30.6 inches. The engine is rated at 14,770 lbs. thrust at the max power throttle setting without the afterburner, and 21,890 lbs. of thrust at the max afterburner throttle setting given standard day settings of 59°, 0% humidity, and sea level static conditions. AN/APG-73 Radar Upgrade: The AN/APG-73 radar will alleviate Electronic CounterCountermeasures (ECCM) deficiences noted in AN/APG-65 radar. The AN/APG-73 design incorporates hardware and software upgrades which increase ECCM effectiveness and provide growth potential for advance ECCM capabilities. AN/APG-73 provides significant improvements in resolution,	APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
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 AlM-9 air-to-air missiles. The E/F version has increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It retains all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft. F414 Engine Durability Improvements: The F414-GE400 used on the F/A-18 E/F aircraft, is a low bypass turbofan engine, with augmented thrust provided by the afterburner. The engine is 155.5 inches long, weighs 2,445 lbs. and has an inlet diameter of 30.6 inches. The engine is rated at 14,770 lbs. thrust at the max power throttle setting without the afterburner, and 21,890 lbs. of thrust at the max afterburner throttle setting given standard day settings of 59°, 0% humidity, and sea level static conditions. AN/APG-73 Radar Upgrade: The AN/APG-73 radar will alleviate Electronic CounterCountermeasures (ECCM) deficiences noted in AN/APG-65 radar. The AN/APG-73 design incorporates hardware and software upgrades which increase ECCM effectiveness and provide growth potential for advance ECCM capabilities. AN/APG-73 provides significant improvements in resolution,	RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7	0204136N F/A-18 SQUADRONS
hardware and software upgrades which increase ECCM effectiveness and provide growth potential for advance ECCM capabilities. AN/APG-73 provides significant improvements in resolution,	increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three 4 version has increased internal fuel capacity, increased weapons carriage capability, increased car increased engine thrust. It retains all of the P3I enhancements developed for the earlier night attack. F414 Engine Durability Improvements: The F414-GE400 used on the F/A-18 E/F aircraft, is a low bypass turbofan engine, with augmente has an inlet diameter of 30.6 inches. The engine is rated at 14,770 lbs. thrust at the max power the	480 gallon drop tanks, four 1,000 pound bombs, and two AIM-9 air-to-air missiles. The E/F arrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and tack C/D version of the aircraft.
	hardware and software upgrades which increase ECCM effectiveness and provide growth potent	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ENT NUMBER AND	NAME		PROJECT NUMBE	R AND NAME		
RDT&E, N / BA-7	0204136N/F/A-18 SQUADRONS E1662 F/A-18 Improvements							
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	137.412	95.079	69.032	44.463	14.701	11.422	10.997	11.164
RDT&E Articles Qty								

A. 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 Joint Helmet Mounted Cueing System (JHMCS), Advanced Targeting Forward Looking Infrared (ATFLIR), development and integration of the Multifunctional Information Distributions System (MIDS), conversion of the System Configuration Set (SCS) to a Higher Order Language (HOL), development of the F/A-18 E/F Advanced Crew Station (ACS), 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.

R-1 SHOPPING LIST - Item No.

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EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME
RDT&E, N / BA-7	0204136N/F/A-18 SQUADRONS	E1662 F/A-18 Improvement	s

(U) B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.495	1.184	1.134	0.899
RDT&E Articles Quantity				

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.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	9.420	20.686	10.722	12.923
RDT&E Articles Quantity				

Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsytems to include MIDS, TAMMAC, and ANAV.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.391	23.626	24.551	12.691
RDT&E Articles Quantity				

Continue and complete development of JHMCS Front and OPEVAL. Start and complete development of Aft Seat.

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification (Exhibit R-2a, page 4 of 45)

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PPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	BER AND NAME	PROJECT NUMBER AND N		February 2003
RDT&E, N / BA-7	0204136N/F/A-18 SQUADRO	ONS	E1662 F/A-18 Improvements	3	
J) B. Accomplishments/Planned Program					
J) B. Accomplishments/Planned Program	FY 02	FY 03	FY 04	FY 05	
J) B. Accomplishments/Planned Program Accomplishments/Effort/Subtotal Cost	FY 02 42.474	FY 03 13.336	FY 04	FY 05	

Complete development of ATFLIR to include DT-IIE testing, TECHEVAL, Operational Test Readiness Review (OTRR) testing, and OPEVAL.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	62.211	23.704	17.459	14.428
RDT&E Articles Quantity				

Complete software conversion from Assembly language, to include H1E SCS and H2E SCS. Start and complete Validation/Verification(V/V), OT and OT&E.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	19.421	12.543	15.166	3.522
RDT&E Articles Quantity				

Continue and complete Aft cockpit ACS development and integration. Start and complete TECHEVAL and OTIIA.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

	OGRAM ELEMENT NUMBER 04136N/F/A-18 SQUADRONS	AND NAME		PROJECT NUMBER	DATE:	February 2003
(U) C. PROGRAM CHANGE SUMMARY: (U) Funding: Previous President's Budget: Current BES/President's Budget Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases		AND NAME		DDO IECT NI IMBED		
(U) C. PROGRAM CHANGE SUMMARY: (U) Funding: Previous President's Budget: Current BES/President's Budget Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	04136N/F/A-18 SQUADRONS			FROJECT NOWBER	AND NAME	
(U) Funding: Previous President's Budget: Current BES/President's Budget Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases				E1662 F/A-18 Improv	vements	
Previous President's Budget: Current BES/President's Budget Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases			•			
Previous President's Budget: Current BES/President's Budget Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	FY 2002	FY 2003	FY 2004	FY 2005		
Current BES/President's Budget Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	140.401	97.416	73.626	45.771		
Total Adjustments Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	137.412	95.079	69.032	44.463		
Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	-2.989	-2.337	-4.594	-1.308		
Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases						
Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases		-0.576				
Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	-0.018	0.070				
SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	-0.289					
Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases	-2.433					
Reprogrammings Other Navy/OSD Adjustments Congressional increases	-0.378	-1.761	-1.743	-1.025		
Other Navy/OSD Adjustments Congressional increases	0.129					
Congressional increases			-2.851	-0.283		
	-2.989	-2.337	-4.594	-1.308		
(U) Schedule:						
ATFLIR's OPEVAL was moved back by one quarter.						
(U) Technical:						
(O) recinical.						

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NA	ME
RDT&E, N / BA-7	0204136N/F/A-18 SQUADRONS	E1662 F/A-18 Improvements	

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Complete	<u>Cost</u>
APN-1	3100.315	3208.045	3031.145	2981.882	3118.854	3299.491	3391.084	3339.395	5598.169	31068.380
P-1 Line Item 2 F/A-18E/F/G (FIGHTER) HC APN-5	219.768	391.204	335.894	420.620	397.113	460.751	425.465	438.087	1605.855	4694.757

P-1 Line Item 29 F-18 Series Modification

Related RDT&E

- (U) P.E. 0207163N Advanced Medium Range Air-to-Air Missile (AMRAAM)
- (U) P.E. 0604215N Standards Development

(U) E. ACQUISITION STRATEGY:

The F/A-18 Improvements program consists of extensive development projects and integration of avionics systems onto the F/A-18E/F that were initially developed for incorporation onto the F/A-18C/D as the lead platform.

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.
- *ANAV. ANAV 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 sole source to Boeing.
- * Higher Order Language (HOL). The conversion of the System Configuration Set 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 sole source contracts. The contract vehicle is a 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 is sole source to Boeing as the Prime aircraft contractor.
- * MIDS. An acquisition developmental effort supported by SPAWAR (PMW-159), MIDS is being developed by a consortium of international companies.
- * JHMCS. JHMCS is a sole source award fee Joint Air Force contract to Boeing.

CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page	e 1)									February 20	03	
APPROPRIATION/BUDGET ACTIVITION	TY	PROGRAM E	LEMENT			PROJECT NU	MBER AND N	NAME		-		
RDT&E, N / BA-7		0204136N F/A	A-18 SQUADR	ONS		E1662 F/A-18	Improvemen	ts				
Cost Categories	Contract	Performing	Total		FY 03		FY 04		FY 05			
		Activity &		FY 03	Award	_	Award	FY 05	Award	Cost to	Total	Target Value
	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Primary Hardware Development PIDS	SS/CPFF	MDA-ST LOUIS,MO	90.030								90.030	90.030
Primary Hardware Development ATF	SS/CPIF/	MDA-ST LOUIS,MO	155.000	8.310	11/02						163.310	163.310
Primary Hardware Development ANAV	SS/CPFF	Northrop-Grumman-LA CA		5.892	02/03	0.148	11/03	0.561	11/04	1.837	8.438	8.438
Primary Hardware Development ACS	SS/CPIF	MDA-ST LOUIS, MO	37.003	10.110	11/02	9.723	11/03	0.179	11/04		57.015	57.015
Primary Hardware Development HOL	SS/CPIF/	NAWCWD-CHINA LAKE	117.836	6.290	11/02	1.681	11/03	2.016	11/04		127.823	127.823
Primary Hardware Development JHM	MIPR	WPAFB DAYTON, OHIO	17.582	19.938	02/03	22.727	02/04	11.743	02/05		71.990	
Primary Hardware Development MIS	WX	OTHER FIELD ACTIVITIES	15.391	5.789	11/02	5.341	11/03	8.076	11/04		34.597	
Ancillary Hdw Develop ATFLIR	WX	NAWCAD-LAKEHURST NJ	9.203								9.203	
Subtotal Product Development			442.045	56.329		39.620		22.575		1.837	562.406	

Remarks:

Development Support MISC	VARIOUS	VARIOUS	33.332	7.785	11/02	4.889	11/03	3.135	11/04	3.854	52.995	
Software Development	WX	NAWCWD-CHINA LAKE	106.244	13.548	11/02	12.984	11/03	11.958	11/04	20.813	165.547	
AWARD FEE ATFLIR (note 1)			1.576								1.576	
Prior Year Costs (Note 2)	Various	Various	2,567.069								2,567.069	
Subtotal Support			2,708.221	21.333		17.873		15.093		24.667	2,787.187	

Remarks:

Note 1: FY99 and prior year award fee earned is 74.7% (ATFLIR) Note 2: Prior year costs (FY95 & prior) not broken out into separate categories.

CLASSIFICATION:

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Exhibit R-3 Cost Analysis (pag	e 2)									February 200)3	
APPROPRIATION/BUDGET ACTIVI	TY	PROGRAM EI				PROJECT NU						
RDT&E, N / BA-7	т.	0204136N F/A		ONS	ı	E1662 F/A-18		ts		•	T	1
Cost Categories	Contract Method & Type			FY 03 Cost	FY 03 Award Date	FY 04	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD, PAX RIVER, MD	48.030			5.875	11/03	5.721	11/04	17.181	86.275	
Operational Test & Evaluation	WX	OPTEVFOR, NORFOLK, VA		6.254	11/02	4.365	11/03				17.340	
Cultural TOF			F 4 7 F 4	45 700		40.040		F 704		47.404	103.615	
Subtotal T&E	L		54.751	15.722		10.240		5.721		17.181	103.615	
Program Management Sup	VARIOUS	NAVAIR, PAX RIVER, MD	8.750	0.539	11/02	0.415	11/03	0.175	11/04	0.975	10.854	
Travel		NAVAIR, PAX RIVER, MD	3.275	1.156	VAR	0.884	VAR	0.899	VAR	3.595	9.809	
Subtotal Management			12.025	1.695		1.299		1.074		4.570	20.663	
Subtotal Management	l		12.025	1.095		1.299		1.074		4.570	20.003	
Remarks:												
Total Cost			3,217.042	95.079		69.032		44.463		48.255	3,473.871	
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedul																									DATE F e	brua	ry 200	03				
APPROPRIATION/BUDGE	T ACTIVI BA-7													R AND Juadro							PROJI E166											
KDI&E, N /	BA-											F/A-	18 50								E100			nprov	/eme							
Fiscal Year		20	02			2	003			20	04	1		200)5			200	06			200)7			20	08			200	09	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones			Firs	t Deploy	y 	IOC	MS	III FRF					A F																			
EMD Phase													-																			
ATFLIR System Development																																
EDM ATFLIR Delivery																																
Software 1XXSW Delivery 2XXSW Delivery																																
Test & Evaluation Milestones				TECHE	VAL																											
Development Test	DT-IIC	;	DT-III	Ė		DT-IIIA																										
Operational Test		OT-I	IIB			OPEVA OT-IIC] [T&E □ ■IIA																								
Production Milestones																																
KPPU FY 01				7																												
FDU FY 01																																
LRIP I FY 01						<u> </u>			5																							
LRIPII FY 02		l	LRIP I	Start									Ц																			
FRP FY 03			$ \downarrow^{\perp}$	$\frac{1}{2}$			FRP Sta	art	\downarrow					→																		
Deliveries			KPPU	(4) FDU (8	8)	LRIP I	(21)		LRIP I	(28)				FRP (5	13)																	

^{*} Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:	Eshruary 20	no
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	EMENT			PROJECT NU		February 20	<u> </u>
			0110					
RDT&E, N / BA-7	0204136N F/	4-18 SQUADR	ONS		E1662 F/A-18	_		
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Developmental Testing (DT-IIC)	1Q							
Developmental Testing (DT-IID) (TECHEVAL)	4Q	1Q						
Developmental Testing (DT-IIE)	2Q-4Q							
Developmental Testing (DT-IIIA)		1Q-3Q						
Operational testing(OT-IIB)	2Q-3Q							
Functional Configuration Audit (FCA)				1Q				
Low-Rate Initial Production I Delivery		1Q-4Q						
Operational Evaluation (OT-IIC) (OPEVAL)		2Q						
Operational Evaluation (OT-IIIA)		3Q-4Q						
Low-Rate Initial Production II Delivery			1Q					
IOC		3Q						
Full Rate Production (FRP) Decision		3Q						
Full Rate Production Start		3Q						
First Deployment	4Q							
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R-1 SHOPPING LIST - Item No.

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EXHIBIT R4, Schedule I																									DATE:		Fe	brua	ry 20	03		
APPROPRIATION/BUDGET	ACTIVI	TY												R AND	NAM	E						ECT N										
RDT&E, N / BA-7									0204	136N	F/A-	18 Sc	quadr	ons							E166	2 F/A-	-18 lm	prov	ement	ts						
Fiscal Year		20	02			20	003			200	04			200)5			200	06			200)7			200	08			200	9	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ANAV Acquisition Milestones						M/-	S B									M/S	B1/LR	RIP I		M/S	B2/LR	IP II			RP Dec	÷		IOC				
Box Dev Risk Reduction ANAV Box Competition Box Contract Award							Λ																									
Box Development Development								PDR C	DR				M Delive (5) (5) (5)	\					FCA		PC/	Ą										
Aircraft Integration Aircraft Risk Reduction Integration BOA Aircraft Modifications					A	 		PDF	R CI	DR _		ſ	Pax C	CL T	CL	. (2) Pa	ax															
Integration Test Tape										Reg	Desig			Flt	Test ian			Dev	velopm	nent		FC	OT&E	7								
Test & Evaluation															3																	
Milestones Lab/King Air Box Test Development Test														D1	Γ-IIA			DT-IIB		DT-	-IIC TE	CHEV#	AL									
Operational Test																 	T-IIA			OT-IIB				_ o	T-IIC C	I DPEVA	AL					
Production Milestones																																
LRIP I FY 06 (Lot 30 A/C)																		RIP I S	Start			Deliverie										
LRIPII FY 07 FRP FY 08																						RIP II St	art		. 1	eliveri T RP Sta	es (54) art			Deliveri	es (54	1)
Aircraft Deliveries																										Lot				Lot		

R-1 SHOPPING LIST - Item No. 170

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Exhibit R-4, Schedule Profile (Exhibit R-4, page 12 of 45)

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
						ı	February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU	MBER AND N	AME	
RDT&E, N / BA-7	0204136N F	F/A-18 Squad	drons		E1662 F/A-	18 Improvem	nents	
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone B (MS B)		2Q						
Box Competition		1Q-2Q						
Box Development Contract Award		3Q						
Box Preliminary Design Review (PDR)		4Q						
Box Critical Design Review (CDR)			1Q					
Eng Dev Model (EDM) Radar Delivery - Lab				1Q				
Integration Contract Award		3Q						
System Preliminary Design Review (PDR)			1Q					
System Critical Design Review (CDR)			2Q					
Test Tape Development/Test			2Q-4Q	1Q-4Q				
H-4E SCS Development/Test			2Q-4Q	1Q-4Q	1Q-4Q	2Q-4Q		
Aircraft Modification				1Q-4Q	1Q			
Lab/King Air Flt Test				1Q-4Q				
Developmental Testing (DT-IIA)				1Q-4Q				
Operational Testing (OT-IIA)				4Q				
Start Low-Rate Initial Production I (LRIP I)					1Q			
DT-IIB				4Q	1Q-4Q			
OT-IIB					3Q			
Functional Configuration Audit (FCA)					3Q			
LRIP I Delivery						1Q-4Q		
LRIP II						1Q		
Physical Configuration Audit						1Q		
DT-IIC TECHEVAL					4Q	1Q		
OT-IIC OPEVAL						2Q-4Q		
LRIP II Delivery							1Q-4Q	
Full Rate Production (FRP) Decision							1Q	
IOC							4Q	
FRP Deliveries								1Q and out

CLASSIFICATION:

EXHIBIT R4, Schedule																									DATE		F	ebrua	ry 20	03		
APPROPRIATION/BUDGET									PROG					R AND	NAM	E					PROJ					ΛE			-			
RDT&E, N /	BA-7								02041	36N F	-/A-18	Squad	irons								E1662	2 F/A-1	8 Impr	rovem	ents							
Fiscal Year		20	02	ı		20	03			20	04	ı		20	05	ı		20	06			200	07	ı		20	08			200)9	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ACS Acquisition Milestones								F	RP De	eC						IOC																
Prototype Phase																																
System Development	CDR																															
EDM Delivery					DVM 	C, 8x1	0, HC,	AMC	Т2																							
Software ACS/AESA Test Readiness Rev AESA/ACS BRR H3E TRR	/iew			Δ			\triangle	^	\																							
Test & Evaluation Milestones							DT-IIA					TF	CHEV	I.A.																		
Development Test													J.1.2.v	-	OT-	IA																1
Operational Test																																
Production Milestones							LRIP I	Start																								
LRIP I FY 03																																
FRP FY 06																	FRP															
Deliveries										Lot 26		l I			Lot 27		Lot 28															

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	EMENT			PROJECT NU	MBER AND N	AME	
RDT&E, N / BA-7	0204136N F/A	A-18 Squadron	S		E1662 F/A-18	Improvements	i	
Schedule Profile for ACS	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006			
Program Start								
Critical Design Review(CDR)	1Q							
Software Milestones:								
ACS/AESA Test Readiness Review (TRR)	4Q							
H3E Test readiness review (TRR)		4Q						
ACS/AESA Build Readiness Review (BRR)		3Q						
Flight Test Aircraft Modification Period	3Q thru	2Q						
First flight Developmental Testing (DT) for ACS Aircraft		2-3Q						
Operational Testing ACS			1Q thru	2Q				
Techeval				1Q				
OT-IIA				3Q-4Q				
IOC				4Q				
Full Rate Production					1Q			
					1			

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R4, Schedu	le Pro	file																								DATE	:	_	- l				
APPROPRIATION/BUDG	FT AC	TIVIT	ΓΥ							IPRO	GRAM	FLEM	FNT N	UMBE	R ANI	NAM C	F					PRO.I	FCT N	IUMBE	R AN	D NAM	1F		ebrua	ary 20	103		
RDT&E, N /		A-7									136N I						_					E1662											
Fiscal Year			200	02			20	03			20				20	05			20	006			20				20	08			20	09	
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
HOL Development Milestones	SDR	_		H2E TRF			H1E OTRR				H2E OTRR																						
Requirements Definition																																	
Design			H2E																														
Development			H1	E		V&V	H2E			V&V																							
Test & Evaluation Milestones				H1E C	T																												
Development Test								E DT			T_																						
Operational Test							H1	E OT&	E		H2E	OT&E																					
Fleet Release										H1E			H2E																				

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU	MBER AND N	AME	
RDT&E, N / BA-7	0204136N F/	A-18 Squadron	S		E1662 F/A-18	Improvements		
Schedule Profile for HOL	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
H1E Development Phase	Q1-Q4							
Validation & Verification (V&V)	Q4	Q1-Q2						
Operational Test Readiness Review (OTRR)		Q2						
Operational Test and Evaluation (OT&E)		Q2-Q4						
Fleet Release			Q1					
H2E Design Phase	Q1-Q4							
Technical Readiness Review (TRR)	Q3							
Development Phase	Q4	Q1-Q4						
Validation & Verification (V&V)		Q4	Q1-Q2					
Operational Test Readiness Review (OTRR)			Q2					
Operational Test and Evaluation (OT&E)			Q2-Q3					
Fleet Release			Q4					

CLASSIFICATION:

EXHIBIT R4, Schedu	le Profile																								DATE	:	F	ebrua	ry 20	03		
APPROPRIATION/BUDG									PROG	RAM	ELEM	ENT N	IUMBE	R AND	NAMI	E						ECT N				ΛE			_			
RDT&E, N /	BA-7								02041	36N F	F/A-18	Squad	drons								E1662	2 F/A-1	8 Impr	ovem	ents							
Fiscal Year		20	02			20	03			20	04			20	05			20	006			200	07			20	800			200	9	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JHMCS Acquisition Milestones	1st Dep	oloyme	ent	\searrow	MS III		,	oductio	n Awar	rd																						
Prototype Phase																																1
JHMCS Front Seat Development	PDR		CDR																													
JHMCS Aft Seat Development						Α	TP		PDR		CDR																					
Software OFP-19C Delivery OFP-H3E Delivery				S (<u> </u>	esign/ CRB		op sign/De	TRR 	DT	TR	/ \	Val _/ F	-	Deliv DT	ery		ОТ	RR	FOT	&E	7										
Test & Evaluation Milestones				<u> </u>	OTRR			D/	F Aft [DΤ						OTR	R _															
Development Test Operational Test	OT-II] B OPE	VAL F	/A-18	∑ E/F	FC	DT&E	C/D							7			FOT	šΕ													
Production Deliveries LRIP II FY 01 LRIP III FY 02 FRP FY 03	LRIP	II Star		LF		Start	FF	P Star	t																							
Deliveries	LRIP II	(39)			▼ LRIP II	II (44)		FRP (4	18)		FRP (42)			FRP (3				FRP (5				FRP (5				FRP (Retrofi	t (72)

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
							February 20)03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU	MBER AND N	AME	
RDT&E, N / BA-7	0204136N F/A	A-18 Squadron	S		E1662 F/A-18	Improvements		
Schedule Profile for JHMCS	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone III (MSIII)		1Q						
Preliminary Design Review (PDR) AFT Seat			1Q					
Critical Design Review (CDR) AFT Seat			3Q					
Test Readiness Review (TRR) Aft Seat			1Q, 3Q					
Developmental Testing (DT-IIA) Aft Seat	4Q	1Q-4Q	1Q-4Q	1Q-3Q				
Software Delivery OFP-19C				3Q				
Low-Rate Initial Production (LRIP II)	1Q-2Q							
Operational Testing (OT-IIB) Front Seat	1Q-2Q							
Operational Evaluation (OT-IIC) (OPEVAL) Front Seat		2Q						
LRIPIII	4Q							
Full Rate Production Start		3Q						2Q
First Deployment	4Q							
Retrofit				2Q				

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ExhibitR-4a, Schedule Profile							Date: F	ebruary 2003
APPROPRIATION/BUDGETACTIVIT RDT&E/BA-7	Y		MELEMENT F/A-18 Squ				NUMBER A -18 Improve	AND NAME ements
Fiscal Year	ର ଜ ପ୍ରସୟ ହା	C2 C3 C4	01 02 03 04	01 Q2 Q3	24 Q1 Q2 Q8	Q4 Q1 Q2 (3 Q4 Q1 Q2	
MIDS LVT F/A-18 Milestones		♦						
MIDS F/A-18P roduction Deliveries	♦ 33>		•					
F/A-18C/D MIDS Integration	•							
C/D D & E	DT-11 A-10	DT-UA-1						i i
C/D OT&E								
F/A-18 E/F MIDS Integration								
E/F DT&E	DT- I A- 11	DT-II A-1						
E/F OT&E								
F/A-18 MC SW Development								
17C SCS (MIDS CID IOC Tape)	MIDS	Ø PEVAL				PIIIPI		
19C SCS	8D	19C V&V	ec ot ✓					
18E (MIDS E/F IOC Tape)	MID	PEVAL.						
H1 SCS (HighOrder LanguageHO	L) #1\	v HIOT						
21C SCS (SAP Block 0) [C/D]			Q UI REM ENTS		LO PM ENT V	v		
H4ESCS (SAPBlock 0) [E/F]			EQ UI REM ENTS	DESIG N	DEVELO PW	ENT O	SE	
					SI AP BLO CK 1			

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Exhibit R-4a, Schedule Detail						Date: Fe	bruary 200	03
APPROPRIATION/BUDGET ACTIVITY RDT&E/BA-7		M ELEMENT I F/A-18 Squa				NUMBER A -18 Improver		
Schedule Profile	FY2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MIDS LVT Development								
MIDS LVT F/A-18 Milestones	2Q-3Q	3Q						
MIDS F/A-18 Production Deliveries	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
F/A-18C/D MIDS Integration								
C/D DT &E	1Q-4Q	3Q						
C/D OT&E		1Q-2Q	1Q-2Q					
F/A-18 E/F MIDS Integration								
E/F DT &E	1Q-4Q	3Q						
E/F OT &E		1Q-2Q	1Q-2Q					
F/A-18 MC SW Development								
17C SCS (MIDS C/D IOCTape)	1Q-4Q	1Q-2Q						
19C SCS	1Q-4Q	1Q-4Q	1Q-2Q					
18E (MIDS E/FIOC Tape)	1Q-4Q	1Q-2Q						
H1 SCS (High Order Language-HOL)	1Q-4Q	1Q-3Q						
21C SCS (SIAP Block 0) [C/D]			1Q-4Q	1Q-4Q	1Q-4Q			
H4E SCS (SIAP Block 0) [E/F]			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		

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KHIBIT R-2A, RDT&E Project Justification							DATE:	
							Februa	ry 2003
PPROPRIATION/BUDGET ACTIVITY ESEARCH DEVELOPMENT TEST & EVALUA	ATION NAVY / F	3A-7			R-1 ITEM NOMENO 0204136N F/A-18 S			
EGLAROIT DEVELOT MILITITE TEGT & EVALOT	Anon, navi /				020413011177 10 0	DQUADITORU		
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
2065/RADAR UPGRADE	114.294	104.481	110.015	78.578	35.613			
a. MISSION DESCRIPTION AND BUDGET ITEM JUS								1

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program began in FY 1999. It 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 increasing 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 operation 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.

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2, page 22 of 45)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justifica	tion			DATE: Februar	v 2003
PPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	IBER AND NAME	PROJECT NUMBER AND N		y 2003
DT&E, N / BA-7	0204136N F/A-18 SQUADR		E2065/RADAR UPGRAD		
. Accomplishments/Planned Program					
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	111.171	92.887	76.199	44.669	
RDT&E Articles Quantity					
Continue EMD effort and radar cross-section a	assessments.				
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	3.123	11.444	29.966	24.759	
RDT&E Articles Quantity					
Continue software development, DT, and syst	tems integration efforts		<u> </u>		
	FY 02	FY 03	FY 04	EV 05	
Accomplishments/Effort/Subtotal Cost	F Y U2	0.150	3.850	FY 05 9.150	
RDT&E Articles Quantity		0.150	3.650	9.150	
AESA OT&E.					
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost					
RDT&E Articles Quantity					
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity					

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	Eghru	ary 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELE	MENT NUMBER	R AND NAME		PROJECT NUM	MBER AND N	NAME	rebit	iai y 2003	
		8 SQUADRONS			E2065/RADAI	R UPGRAD	E			
C. PROGRAM CHANGE SUMMARY:										
Funding: Previous President's Budget: Current BES/President's Budget Total Adjustments		FY 2002 110.235 114.294 4.059	FY 2003 107.050 104.481 -2.569	FY 2004 74.554 110.015 35.461	FY 2005 67.529 78.578 11.049					
Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer		0.033 -2.566	-0.634							
Economic Assumptions Reprogrammings Other Navy/OSD Adjustments		-0.311 6.903	-1.935	-2.818 38.279	-1.684 12.733					
Congressional increases Subtotal		4.059	-2.569	35.461	11.049					
Schedule:										
Not Applicable.										
Technical:										
Not Applicable.										
D. OTHER PROGRAM FUNDING SUMMARY:									-	T-1-1
Line Item No. & Name APN-1	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To <u>Complete</u>	Total <u>Cost</u>
P-1 Line Item 2 F/A-18E/F/G (FIGHTER) HORNET (MYF APN-5	38.082	95.252	104.254	131.702	186.506	248.632	245.800	250.065	338.764	1639.057
P-1 Line Item 29 F/A-18 Series Modification (OSIP XX-07	7)					30.118	30.667	31.210	219.441	311.436
			NINO LIOT		470					

CLASSIFICATION:

EXHIBIT R-2a, RDT&	E Project Justification			DATE: February 2003
APPROPRIATION/BUDG RDT&E, N /	ET ACTIVITY BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NA E2065/RADAR UPGRADE	
E. ACQUISITION ST	TRATEGY:		•	

The AESA program employs a two-phase approach with sole source contracts to Boeing, the airframe prime manufacturer. Phase I is a moderate risk reduction phase conducted in FY 1999 and FY 2000. During this phase, Boeing conducted competitive source selection at the radar system subcontract level. A BOA order for RFP development and subcontractor selection was made to conduct this effort. It includes an "845" agreement for prototype development, which includes commercial development/amortization provisions. Conducting the competition early in the program allowed for focused risk reduction and contractor investment. Phase II consisted of a typical System Demonstration program and development contract. The program transitioned to Phase II with a successful Milestone II Decision in FY 2001. Once the program enters production in FY03, 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 Commercial Off-the Shelf software and Non-Developmental Item; Cost as an Independent Variable; and Electronic Data Deliverables.

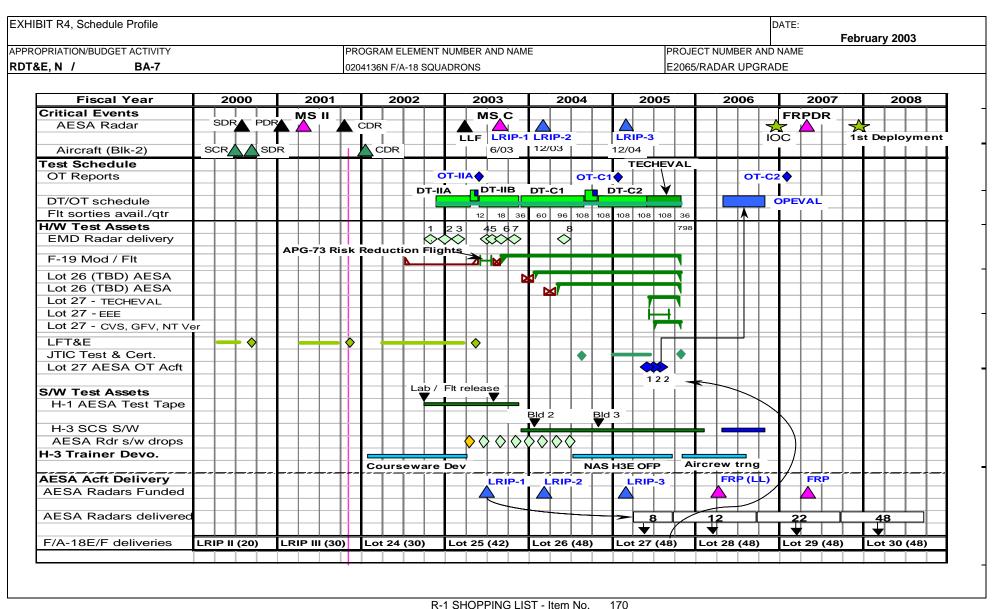
CLASSIFICATION:

								DATE:					
Exhibit R-3 Cost Analysis (pag	e 1)									February 20	003		
APPROPRIATION/BUDGET ACTIVI	TY	PROGRAM	ELEMENT			PROJECT NU	JMBER AND	NAME					
RDT&E, N / BA-7		0204136N F	/A-18 SQUADRO	SNC		E2065/RAD							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost		Target Value of Contract
Primary Hardware Development (EM			195.919	1	1	76.137		44.628		21.72		431.016	
Primary Hardware Development (pre			4.900		10/02	70.137	10/03	44.020	10/04	21.12		4.900	4.900
GFE	SS	MDA - St Louis, MO	3.517									3.517	3.517
O. L		imbre of Edulo, ind	0.011									0.011	0.017
Subtotal Product Development			204.336	92.610		76.137	7	44.628		21.72	2	439.433	
Software Development	wx	NAWCWD China Lake, CA	4.590	4.438	10/02	14.072	10/03	11.714	10/04			34.814	
Integrated Logistics Support	WX	NADEP North Island, CA	0.321	0.050	1	14.072	10/00	11.71-	10/01			0.371	
Integrated Logistic Support	WX	NAWCAD Lakehurst, NJ	0.647	0.158								0.805	
Subtotal Support			5.558	4.646		14.072	2	11.714		0.00	0	35.990	
Remarks:													

CLASSIFICATION:

									DATE:				
Exhibit R-3 Cost Analysis (pag	e 2)										February 200	3	
APPROPRIATION/BUDGET ACTIV	TY	PROGRAM E	LEMENT				PROJECT NU	MBER AND N	NAME		•		
RDT&E, N / BA-7		0204136N F/A	A-18 SQUAD	RONS			E2065/RADA	R UPGRAD	E				
Cost Categories	Contract	Performing	Total			FY 03		FY 04		Y 05			
	Method	Activity &	PY s	FY 03		Award		Award		Award	Cost to	Total	Target Value
	& Type	Location	Cost	Cost		Date		Date		Date	Complete		of Contract
Developmental Test & Evaluation	WX	NAWCAD Pax River, MD	5.6	72	2.567	10/02	1.822	10/03	1.330	10/04		11.391	
Operational Test & Evaluation	WX	OPTEVFOR, Norfolk, VA			0.150	10/02	3.850	10/03	9.150	10/04	13.851	27.001	
Developmental Test & Evaluation	WX	NAWCWD China Lake, CA			4.443	10/02	14.074	10/03	11.716	10/04		30.233	
Subtotal T&E			5.6	72	7.160		19.746		22.196		13.851	68.625	
Program Management Support	Various	NAVAIR Pax River, MD	1.6	52								1.652	
Travel	WX	NAVAIR Pax River, MD	0.2	95	0.065	10/02	0.060	10/03	0.040	10/04	0.040	0.500	
Subtotal Management			1.9	47	0.065		0.060		0.040		0.040	2.152	
Remarks:													
Total Cost			217.5	13	104.481		110.015		78.578		35.613	546.200	
Remarks:													

CLASSIFICATION:



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Exhibit R-4a, Schedule Detail						DATE:		
						ı	February 200	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT			PROJECT NU	MBER AND N	AME	
RDT&BA-7	0204136N F/A	A-18 SQUADRO	ONS		E2065/RADA	AR UPGRADE	Ξ	
Schedule Profile	e Profile FY 2002 FY 2003 FY 2004 FY 2005 FY 20							
Critical Design Review (CDR)	1Q						FY 2008	FY 2009
Developmental Testing (DT-IIA)	4Q	1Q-2Q						
Milestone C (MS C)		3Q						
Operational Testing (OT-IIA)		2Q					ļ	
Start Low-Rate Initial Production I (LRIP I)		3Q						
Developmental Testing (DT-IIB1)		2Q-4Q						
Start Low-Rate Initial Production II			1Q				ļ	
Low-Rate Initial Production I Delivery				2Q-3Q			ļ	
Technical Evaluation (TECHEVAL)				2Q-4Q			ļ	
Operational Evaluation (OT-IIC) (OPEVAL)					2Q-4Q			
Low-Rate Initial Production II Delivery				4Q	1Q-3Q		ļ	
IOC					4Q		ļ	
Full Rate Production (FRP) Decision						2Q		
Full Rate Production Start						2Q		
First Deployment						4Q		

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMI	ENT NUMBER ANI	O NAME		PROJECT NUMBE	ER AND NAME		
RDT&E, N / BA-7	0204136N/ F/A-18	Squadrons			E2130/Follow-on \	/ariant		
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	1.148							
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The F/A-18 is a twin-engine, mid-wing multi-mission, tactical aircraft employed 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-18E/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-18C/D program, is reflected in the RDT&E total, but is not included in the approved \$4,883B development cap.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justificat	ion			DATE: Februar	.v. 2002
PPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	MBER AND NAME	PROJECT NUMBER AND I		y 2003
RDT&E, N /BA-7	0204136N/ F/A-18 Squadro	ns	E2130/Follow-on Variant		
N. D. Assaultishmanta/Diamad Day					
J) B. Accomplishments/Planned Program					
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.176				
RDT&E Articles Quantity					
Completed integration and testing of evication	au hayatama				
Completed integration and testing of avionics	subsystems.				
	FV 00	FV 02	5V.04	EV of	
Accomplishments/Effort/Subtotal Cost	FY 02 0.972	FY 03	FY 04	FY 05	
RDT&E Articles Quantity	0.972				
NOTAL Articles Quartity	L			<u>l</u>	
Completed Test Program Set (TPS) development	ent.				
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost					
RDT&E Articles Quantity					

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DA	TE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	E
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons	E2130/Follow-on Variant	
(U) C. PROGRAM CHANGE SUMMARY:			
(U) Funding: Previous President's Budget: Current BES/President's Budget	FY 2002 1.136 1.148		
Total Adjustments	0.012		
Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer Economic Assumptions Reprogrammings Other Navy/OSD Adjustments Congressional increases Subtotal	-0.003 -0.034 -0.003 0.052		
(U) Schedule:			
Not Applicable.			
(U) Technical:			
Not Applicable.			
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
									Februar	y 2003	
APPROPRIATION/BUDGET ACTIVITY	P	PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUM	BER AND N					
RDT&E, N / BA-7	0	204136N/ F/A-	18 Squadrons			E2130/Follow-or	Variant				
(U) D. OTHER PROGRAM FUNDING SUMM	ARY: FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total <u>Cost</u>	
APN-1 P-1 Line Item No. 2 F/A-18E/F/G (FIGHTER)	3100.315	3208.045	3031.145	2981.882	3118.854		3391.084	3339.395	5598.169	31068.380	
APN-5 P-1 Line Item No. 29 F-18 Series Modification	11.228	47.352	47.049	48.237	19.065	20.852	21.201	21.865	28.861	265.710	

(U) E. 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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY PROGRAM ELEMENT NUMBER AND NAME PROJECT NUMBER AND NAME								
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons E9267 F414 Engine Durability							
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		6.832						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

F414 Engine Durability Improvements will support testing of engine components applicable to a potential F414 Enhanced Durability Engine (EDE). The improved component efficiency of the EDE could be used to increase life or performance of the F414. The expected improvements will result in in either a projected 2-3X life improvement and associated projected Total Ownership Cost avoidance of \$1 to 2 Billion over the life of the program, or a 15% thrust increase.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justific	ation			DATE:	ry 2003
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NU	MBER AND NAME	PROJECT NUMBER AND N	NAME	ii y 2003
DT&E, N / BA-7	0204136N/ F/A-18 Squadro	ons	E9267 F414 Engine Dura	bility	
Accomplishments/Planned Program					
	FY 02	FY 03	FY 04	FY 05	
Critical Structures Analysis		6.832			
RDT&E Articles Quantity					
Start and complete analysis of F414 Engine.					
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost		1			
RDT&E Articles Quantity					
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity	FY 02	FY 03	FY 04	FY 05	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAM	ME PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons	E9267 F414 Engine Durability
C. PROGRAM CHANGE SUMMARY:		
Funding: Previous President's Budget:	FY 2002 FY 20 0.0	
Current BES/President's Budget Total Adjustments	<u>6.8</u> 6.8	
Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions	-0.0	041
SBIR/STTR Transfer Economic Assumptions Reprogrammings	-0.1	
Congressional increases Subtotal	7.0 0.000 6.8	000 832
Schedule:		
Not applicable.		
Technical:		
Not applicable.		
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Pro	ject Justification								DATE:		
										Febru	ary 2003
APPROPRIATION/BUDGET ACTIVITY			PROGRAM E	PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N /	BA-7		0204136N/ F/	A-18 Squadror	ns		E9267 F414	Engine Dura	bility		
D. OTHER PROGRAM F	UNDING SUMMARY:									То	Total
Line Item No. & Name		FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Complete	Cost
P-5 line item 4 P-1 Line Item 2 F/A-18E/ APN-1 BLI 014500	F/G (FIGHTER) HORNET	369.996	345.475	321.226	322.681	325.108	343.255	346.087	349.315	595.149	3318.292

E. ACQUISITION STRATEGY:

The F414 Engine Durability will employ sole source contract with General Electric, the engine prime manufacture. This analyses will provide expected improvements that will result in either a projected 2-3X life improvement or a 15% thrust increase.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY								
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons E9268 Radar Upgrade							
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		4.097						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The F/A-18 APG-73 Radar Upgrade (expand4/5) software development effort will enable aircrew to view Synthetic Aperture Radar (SAR) data in the cockpit and will provide real-time reconnaissance ability. The APG-73 Expand 4/5 Upgrade will fully exploit the previous Radar Upgrade (RUG) Phase II investment by completing the required additional software development, integration, testing, and support structure to realize this capability.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

IBIT R-2a, RDT&E Project Justification PRIATION/BUDGET ACTIVITY PROGRAM ELEMENT NUMBER AND NAME PROJECT NUMBER AND NA								
PROGRAM ELEMENT NU	MBER AND NAME	PROJECT NUMBER AND N	February 2	2003				
0204136N/ F/A-18 Squadro		E9268 Radar Upgrade						
FY 02	FY 03	FY 04	FY 05					
	4.097							
FY 02	FY 03	FY 04	FY 05					
FY 02	FY 03	FY 04	FY 05					
	FY 02	FY 02 FY 03	FY 02 FY 03 FY 04	FY 02 FY 03 FY 04 FY 05				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons	E9268 Radar Upgrade	
C. PROGRAM CHANGE SUMMARY:			
Funding:	FY 2003		
Previous President's Budget:	0.000		
Current BES/President's Budget	4.097		
Total Adjustments	4.097		
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions	-0.025		
Congressional rescissions			
SBIR/STTR Transfer	0.070		
Economic Assumptions	-0.078		
Reprogrammings Congressional increases	4.200		
Subtotal	4.097		
Subtotal	4.007		
Schedule:			
Not applicable.			
1401 αρφιισασίο.			
Technical:			
Not applicable.			
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E	Project Justification		DATE:	
				February 2003
APPROPRIATION/BUDGE		PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /	BA-7	0204136N/ F/A-18 Squadrons	E9268 Radar Upgrade	
D. OTHER PROGRA	AM FUNDING SUMMARY:			
Not Applicable				
E. ACQUISITION STR	ATEGY:			
Expand 4/5 Upg design, interface	grade will develope high resolution control definition, and program	on and very high resolution radar imagery in the cockpit. Funding risk reduction.	ng will be used to complete phase 1, consisting of	f system concept development,
3 /	, ,			

CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (pa APPROPRIATION/BUDGET ACTI	ige 1)									February 200	03	
	VITY	PROGRAM	ELEMENT			PROJECT N	JMBER ANI	D NAME				
RDT&E, N / BA-7			-/A-18 SQUADR			E9268 Rada	ar Upgrade)				
Cost Categories	Contract	Performing	Total		FY 03		FY 04		FY 05			
	Method	Activity &	PY s		Award	FY 04	Award	FY 05	Award	Cost to	Total	Target Value
	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
							-					
Subtotal Product Development			0.000	0.000		0.000	D	0.000		0.000	0.000)
Software Development	WX	NAWCWD China Lake, CA		2.097	06/03						2.097	
Software Development	WX	NADEP North Island, CA		2.000	06/03						2.000)
·												
Subtotal Support			0.000	4.097		0.000)	0.000)	0.000	4.097	•
	•				•		•		•			
Remarks:												
			R-1 SHOE	PPING LIST	- Itam No	170						

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 42 of 45)

CLASSIFICATION:

	DATE:																	
Exhibit R-3 Cost Analysis (page	e 2)		February 2003															
APPROPRIATION/BUDGET ACTIVI	TY		PROGRAM E				PROJECT NU		AME									
	BA-7			-18 SQUADRO	ONS		E9268 Rada	r Upgrade										
Cost Categories	Contract	Performing		Total		FY 03		FY 04		FY 05								
	Method	Activity &		PY s	FY 03		FY 04	Award	FY 05	Award	Cost to	Total	Target Value					
	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract					
Subtotal T&E				0.000	0.000		0.000		0.000		0.000	0.000						
Remarks:																		
Subtotal Management				0.000	0.000		0.000		0.000		0.000	0.000						
Remarks:																		
Total Cost				0.000	4.097		0.000		0.000		0.000	4.097						
Remarks:																		

CLASSIFICATION:

EXHIBIT R4, Schedul	e Profile)																							DATE	:	_	obrus	ary 20	103		
APPROPRIATION/BUDGI	ET ACTIV	'ITY							PRO	GRAM	ELEM	ENT N	IUMBE	R ANI) NAM	ΙΕ					PROJ	ECT N	UMBE	R AN	D NAM	IE .		ebiua	ary Zu	103		
RDT&E, N /	BA-									136N I											E926											
Fiscal Year			002			20	03			20				20	05			20	06			200		<u> </u>		20	08			20	09	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Requirements Definition							Δ																									
Development																																

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:	DATE:					
	February 2003											
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT	JMBER AND NAME									
RDT&E, N /BA-7	0204136N F/	A-18 Squadron	S	E9268 Radar Upgrade								
Schedule Profile for Expand 4/5	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009				
Development Phase		Q3-Q4	Q1-Q3									