

# UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>February 2007</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY / BA-7</b>					R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	83.538	39.279	44.891	66.289	66.256	60.956	52.142	35.438
1662 F/A-18 Improvements	19.321	24.615	41.950	66.289	66.256	60.956	52.142	35.438
2065 F/A-18 RADAR Upgrade	55.849	6.346	2.941					
9999 Congressional Adds	8.367	8.318						

**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 and to ensure interoperability in a network centric environment. 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 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, Advance Targeting Forward Looking Infrared (ATFLIR) pods, and various bomb/missile launching racks). Additional capabilities are required for interoperability in a network-centric operational environment. 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), development of the F/A-18 E/F Advanced Crew Station (ACS), replacement of Automatic Carrier Landing System (ACLS) in the F/A-18, 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 for interoperability in a network centric operational environment, to include: increased software capabilities, potential new hardware capabilities, upgrading existing hardware, and network centric warfare upgrades. Additionally, a continuing capability is needed to perform technical evaluations/investigative flight testing and improve software based on reported fleet problems. This funding line also includes F/A-18E/F weapons integration requirements where a new capability is added to the aircraft, to include Dual Mode Weapons. FY08 New Start Programs bringing additional capabilities are: an Infrared Search and Track (IRST) and Integrated Defensive Electronic Counter Measures (IDECM) integrated with the Active Electronically Scanned Array (AESA) to provide Narrow Band High Gain Electronic Attack. This budget also now contains funding for F/A-18A-F Test Wing Maintenance support.

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<p><b>F/A-18 Radar Upgrade:</b> 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 and it 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.</p> <p><b>Congressional Adds:</b></p> <p><b>Military Rapid Response Command Information System:</b> The Military Rapid Response-Command and Information System (MRRCCIS) is a command, control, and communications mobile ground node that will provide enhanced connectivity between Naval TACAIR (F/A-18) weapon platforms and USMC's Expeditionary Warfare ground C2 nodes such as the On-the-Move Network Digital Over Horizon Radio System (CONDOR) and Joint Forces Command's Rapid Attack Information Dissemination Execution Relay (RAIDER). This funding will be used to perform a initial proof-of-concept demonstration, system engineering and analysis on new technologies with the long range goal of establishing test and evaluation facilities in Hawaii. This work will leverage off of joint service facilities to test the Sea Power 21/ForceNet concepts above.</p> <p><b>F/A-18E/F Net Centric Operations Upgrades:</b> Improvements within the Network Centric Operations environment to include development and implementation of Blue Force situational awareness, Combat Identification, and Multi-Moving Track Targeting in F/A-18E/F. This Congressional Add develops concept of operations defining joint interoperability and targeting architecture to support planning, development, execution, and analysis of recurring large-scale Joint Force experimentation. Network Centric Operations efforts funded in the F/A-18 Improvements project (1662) will build upon this work.</p> <p><b>F/A-18 A-D Series Tech Manual Conversion: 9A68N</b></p> <p><b>F/A-18 C/D Digital Electronic Warfare System: 9A69N</b></p>		

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**B. PROGRAM CHANGE SUMMARY:**

Funding:	FY 06	FY 07	FY 08	FY 09
Previous President's Budget:	86.089	31.098	15.298	10.095
Current President's Budget:	83.538	39.279	44.891	66.289
Total Adjustments	-2.551	8.181	29.593	56.194
Summary of Adjustments				
Congressional Reductions				
Congressional Rescissions				
Congressional Undistributed Reductions				
	-1.221	-0.169		
Congressional Increases				
	0.096	8.350		
Economic Assumptions				
			0.150	0.999
Miscellaneous Adjustments				
	-1.426		29.443	55.195
Subtotal	-2.551	8.181	29.593	56.194

Schedule:

The schedule changes beginning in FY08 are due to additional funding for: IDECM integrated with AESA to provide Narrow Band High Gain Electronic Attack; Infrared Search and Track (IRST); and Test Wing Maintenance.

Technical:

Technical changes beginning in FY08 are due to additional funding for: F/A-18 Weapons Integration, to include Dual Mode Weapons; IDECM integrated with AESA to provide Narrow Band High Gain Electronic Attack; Infrared Search and Track (IRST); and Test Wing Maintenance.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2007</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>		PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME 1662 F/A-18 Improvements				
COST (\$ in Millions)		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost		<b>19.321</b>	<b>24.615</b>	<b>41.950</b>	<b>66.289</b>	<b>66.256</b>	<b>60.956</b>	<b>52.142</b>	<b>35.438</b>
RDT&E Articles Qty									

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

**F/A-18 Improvements:** 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, Advance Targeting Forward Looking Infrared (ATFLIR) pods, and various bomb/missile launching racks). Additional capabilities are required for interoperability in a network-centric operational environment. 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), development of the F/A-18 E/F Advanced Crew Station (ACS), replacement of Automatic Carrier Landing System (ACLS) in the F/A-18, 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 for interoperability in a network centric operational environment, to include: increased software capabilities, potential new hardware capabilities, upgrading existing hardware, and network centric warfare upgrades. Additionally, a continuing capability is needed to perform technical evaluations/investigative flight testing and improve software based on reported fleet problems. This funding line also includes F/A-18E/F weapons integration requirements where a new capability is added to the aircraft, to include Dual Mode Weapons. FY08 New Start Programs bringing additional capabilities are: an Infrared Search and Track (IRST) and Integrated Defensive Electronic Counter Measures (IDECM) integrated with the AESA to provide Narrow Band High Gain Electronic Attack. This budget also now contains funding for F/A-18A-F Test Wing Maintenance support.

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME 1662 F/A-18 Improvements

**B. Accomplishments/Planned Program**

New Weapons System, Network Centric Ops	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.587	1.062	10.893	9.536
RDT&E Articles Quantity				

Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development and fleet use of the aircraft. Provide technical support for the integration of new weapons and systems. Begin Network Centric Warfare capability development.

Weapons systems/Mids/ANAV/SIAP	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	12.478	20.053	5.729	
RDT&E Articles Quantity				

Continue to develop and integrate enhancements to the effectiveness, interoperability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS and ANAV. Continue to develop and integrate enhancements in support of Single Integrated Air Picture (SIAP) block 0 ICP TJ00-004 change 2 to incorporate track identification Taxonomy improvements.

JHMCS Development	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.250			
RDT&E Articles Quantity				

Continue and complete development and Operational Test of JHMCS Front and Aft Seat.

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**B. Accomplishments/Planned Program (Cont.)**

Link 4A/RT-1379A/ACLS	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	4.006			
RDT&E Articles Quantity				

Development of the LINK 4A/ RT-1379A replacement and Depot repair stand-up. The RT-1379A is required for the automatic carrier landing system (ACLS) in the F/A-18.

IDECM with AESA/ Weapons Testing and Maintenance	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		3.500	17.128	19.188
RDT&E Articles Quantity				

Begin validation and verification of various Weapon Configurations on F/A-18E/F aircraft, to include Dual Mode Weapons and fleet-identified high priority weapons loads. Perform aircraft maintenance on Test Wing aircraft. Begin Hardware and software development for IDECM integration with AESA to provide Narrow Band High Gain Electronic Attack capability.

IRST	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost			8.200	37.565
RDT&E Articles Quantity				

Systems design and development of an Infrared Search & Track sensor for the F/A-18 E/F.

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**D. OTHER PROGRAM FUNDING SUMMARY:**

**Related Procurement**

<u>Line Item No. &amp; Name</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>To Complete</u>	<u>Total Cost</u>
F/A-18E/F APN-1 (P-1 Line Item #4)	2,686.884	2,497.346	2,057.149	1,717.561	1,930.577	1,660.893	1,604.680	201.241	0.000	39,761.500
F/A-18E/F Adv Procurement (P-1 Line Item #5)	84.827	52.582	46.817	51.088	41.568	46.840	0.000	0.000	0.000	1,592.112
EA-18G APN-1 (P-1 Line Item #2)	325.431	605.579	1,267.710	1,590.587	1,318.217	697.965	242.585	0.000	0.000	6,233.399
EA-18G Adv Procurement (P-1 Line Item #3)	26.131	39.593	51.117	38.316	17.502	4.461	0.000	0.000	0.000	185.325
APN-5										
F-18 Series Modification (P-1 Line Item #32)	439.947	424.661	441.883	460.157	480.431	510.555	521.865	529.624	340.036	6,119.453

**Related RDT&E**

<u>Line Item No. &amp; Name</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) P.E. 0604269N EA-18G (R-1 Line Item #96)	379.744	372.315	272.699	135.226	72.273	45.204	36.721	28.289		1,919.868

**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. The major programs within the F/A-18 Improvements project are:

- ANAV. ANAV development is provided on a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement to Boeing. Procurement of production hardware will be made as CFE through the prime contractor.
- MIDS. An acquisition developmental effort supported by SPAWAR (PMW-780).
- JHMCS. JHMCS development is via a sole source cost plus award fee Joint Air Force contract to Boeing.
- ACLS. ACLS development is provided on a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement to Boeing. Procurement of redesigned/replacement components will be made as GFE through Naval Undersea Warfare Center.
- IRST. The IRST Phase 1 program is a Navy program\* entering the Systems Design and Development phase at Milestone B in FY08. A Phase 1 system will be developed by the Navy that will meet requirements for a counter electronic attack capability. This capability will reach IOC in FY13.

\*There exists potential US Air Force interest in a Phase II capability to be funded in future POM submits.

Exhibit R-3 Cost Analysis (page 1)	DATE: <b>February 2007</b>
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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME 1662 F/A-18 Improvements
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Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development PIDS/DCS	SS/CPFF/FFF	MDA-ST LOUIS,MO	90.000								90.000	90.000
Primary Hardware Development ATFLIR	SS/CPIF/AF	MDA-ST LOUIS,MO	166.147								166.147	166.147
AWARD FEE ATFLIR			1.576								1.576	1.576
Primary Hardware Development ANAV	SS/CPFF	MDA-ST LOUIS,MO	25.486	3.261	01/07	0.175	01/08				28.922	28.922
Primary Hardware Development ACS	SS/CPIF	MDA-ST LOUIS,MO	50.493								50.493	50.493
Primary Hardware Development JHMCS	MIPR	WPAFB DAYTON, OHIO	49.409								49.409	
Primary Hardware Development MISC.	WX	VARIOUS	50.791								50.791	
Primary Hardware Development ACS	SS/CPFF	Triton, MD	2.500								2.500	2.500
Ancillary Hdw Develop ATFLIR	WX	NAWCAD-LAKEHURST NJ	9.201								9.201	
System Engineering	WX	NAWCAD, PAX RIVER, MD	4.884								4.884	
Primary Hardware Development IRST	TBD	TBD				3.000	01/08	26.500	01/09	52.400	81.900	81.900
Aircraft Integration IRST	TBD	MDA-ST LOUIS,MO				1.000	01/08	2.000	01/09	4.000	7.000	7.000
Weapons Integration	TBD	TBD				3.160	01/08	0.460	01/09	1.300	4.920	4.920
Aircraft Integration IDECM	WX	NAWCWD, China Lake				1.365	01/08	3.552	01/09	6.205	11.122	
Primary Hardware Development NCO	TBD	MDA-ST LOUIS,MO				3.594	01/08	3.528	01/09	8.150	15.272	15.272
Subtotal Product Development			450.487	3.261		12.294		36.040		72.055	574.137	

Remarks: "Target Value " of contracts beginning in FY08 reflect estimated values.

Development Support MISC	VARIOUS	VARIOUS	39.306	0.958	12/06	1.000	01/08	0.200	01/09		41.464	
Software Development	WX	NAWCWD-CHINA LAKE	149.029	8.056	11/06	0.765	01/08	0.805	01/09	1.850	160.505	
Software Development (TDL)	SS/CPIF/TDL	MDA-ST LOUIS,MO	135.237	2.777	11/06	5.911	01/08	2.885	01/09	6.540	153.350	153.350
Prior Year Costs	Various	Various	2,567.069								2,567.069	
Development Support IRST	WX	NAWCWD-CHINA LAKE				0.500	01/08	1.000	01/09	3.000	4.500	
Software Development IRST	WX	NAWCWD-CHINA LAKE				1.000	01/08	4.000	01/09	8.500	13.500	
Software Development IDECM	WX	NAWCWD-CHINA LAKE				0.870	01/08	2.265	01/09	3.956	7.091	
Subtotal Support			2,890.641	11.791		10.046		11.155		23.846	2,947.479	

Remarks:  
Prior year costs (FY95 & prior) not broken out into separate categories.

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Exhibit R-3 Cost Analysis (page 2)										DATE: <b>February 2007</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
<b>RDT&amp;E, N / BA-7</b>			0204136N F/A-18 SQUADRONS				1662 F/A-18 Improvements					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD, PAX RIVER, MD	55.688	2.628	11/06	1.800	11/07	0.800	11/08	2.000	62.916	
Operational Test & Evaluation	WX	OPTEVFOR, NORFOLK, VA	14.111	2.198	11/06	0.200	11/07			2.450	18.959	
Developmental Test & Evaluation	WX	NAWCWD, CHINA LAKE, CA		3.460	11/06	1.557	11/07	0.468	11/08	9.127	14.612	
Developmental Test & Evaluation IRST	WX	NAWC-WD / NAWC-AD						0.500	11/08	23.200	23.700	
Operational Test & Evaluation IRST	WX	OPTEVFOR / VX-9								6.500	6.500	
Subtotal T&E			69.799	8.286		3.557		1.768		43.277	126.687	
Remarks:												
Program Management Support	VARIOUS	NAVAIR, PAX RIVER, MD	15.915	0.547	12/06	0.805	01/08	0.700	01/09	7.248	25.215	
Travel	WX	NAVAIR, PAX RIVER, MD	6.196	0.730	VAR	0.990	01/08	1.000	01/09	0.606	9.522	
Contractor Engineering Support IRST	TBD	TBD				1.200	01/08	2.065	01/09	9.100	12.365	
Government Engineering Support IRST	WX	TBD				1.350	01/08	1.350	01/09	8.296	10.996	
Contractor Engineering Support TWCM	TBD	NAVAIR, PAX RIVER, MD				11.469	01/08	11.735	01/09	49.532	72.736	
Government Engineering Support IDECM	WX	NAWCWD, China Lake				0.239	01/08	0.476	01/09	0.832	1.547	
Subtotal Management			22.111	1.277		16.053		17.326		75.614	132.381	
Remarks:												
Total Cost			3,433.038	24.615		41.950		66.289		214.792	3,780.684	
Remarks:												

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Exhibit R-4a, Schedule Detail					DATE: <b>February 2007</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT 0204136N F/A-18 Squadrons				PROJECT NUMBER AND NAME 1662 F/A-18 Improvements			
Schedule Profile for ANAV	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Eng Dev Model (EDM) Delivery - Boeing (Lab/Flight Testin	1Q							
Step 2 ECP	4Q							
Flight Test	1Q-4Q	1Q-3Q						
H-4E SCS Development/Test	1Q-4Q	1Q-3Q						
Aircraft Modification	1Q, 2Q-3Q							
Lab/King Air Flt Test / Developmental Testing (DT-IIA)	1Q-2Q							
DT-IIB	1Q-4Q	1Q						
DT-IIC TECHEVAL	4Q	1Q-3Q						
Functional Configuration Audit (FCA)	3Q							
Physical Configuration Audit (PCA)		1Q						
IOC			4Q					
Lot 30 Deliveries			1Q-4Q					
Lot 31 Deliveries				1Q-4Q				

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Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			
	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
<b>MIDS</b> LVT F/A-18 Milestones									★				★																			
F/A-18C/D MIDS Integration									★ H4E Fleet Release Date				★ 21X Fleet Release Date																			
C/D DT&E																																
C/D OT&E																																
F/A-18 E/F MIDS Integration																																
E/F DT&E																																
E/F OT&E																																
F/A-18 MC SW Development																																
19C Software Configuration Set																																
21X SCS (SIAP Block 0) [C/D]																																
H4E SCS (SIAP Block 0) [E/F]																																
SIAP SOW Tasks																																
Production Deliveries																																
Software Load																																

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EXHIBIT R4, Schedule Profile																								DATE: <b>February 2007</b>								
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Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			
	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
<b>JHMCS Acquisition Milestones</b>																																
Prototype Phase																																
JHMCS Front Seat Development																																
JHMCS Aft Seat Development																																
Software OFP-Assembly Language OFP-High Order Language (HOL)																																
<b>Test &amp; Evaluation Milestones</b>																																
Development Test																																
Operational Test																																
<b>Production Milestones</b>																																
ECP Intro duction (Lot 30)																																
Production Deliveries																																

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Schedule Profile JHMCS	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Preliminary Design Review (PDR) AFT Seat								
Critical Design Review (CDR) AFT Seat								
Test Readiness Review (TRR) Aft Seat								
Developmental Testing Aft Seat	1Q-4Q							
Operational Testing (OT-IIB) Front Seat								
Development Test (DT) D AFT seat	1Q-4Q							
Development Test (DT) F AFT seat	1Q-2Q							
Software Delivery OFP-Assembly Language	3Q	3Q						
Software Delivery OFP-High Order Language (HOL)	4Q							
Follow On Test Evaluation (D Aft Seat)		1Q-2Q						
Follow On Test Evaluation (F Aft Seat)	3Q-4Q							
LRIPIV								
ECP Introduction Date	4Q							
Deliveries			1Q-4Q					

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: <b>February 2007</b>								
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>												PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons								PROJECT NUMBER AND NAME 1662 F/A-18 Improvements												
Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			
	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
<b>ACS Acquisition Milestones</b>				IOC ★																												
Prototype Phase																																
Radar System Development																																
EDM Radar Delivery																																
Software 1XXSW Delivery 2XXSW Delivery																																
<b>Test &amp; Evaluation Milestones</b>																																
Development Test																																
Operational Test																																
<b>Production Milestones</b>																																
Production Deliveries																																

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**CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE: <b>February 2007</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>		PROGRAM ELEMENT 0204136N F/A-18 Squadrons			PROJECT NUMBER AND NAME 1662 F/A-18 Improvements				
Schedule Profile for <b>ACS</b>		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
TECHEVAL		1Q-2Q							
FOT&E ACS		2Q-4Q							
IOC		4Q							

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**CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE: <b>February 2007</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT 0204136N F/A-18 Squadrons				PROJECT NUMBER AND NAME 1662 F/A-18 Improvements			
Schedule Profile for NCO	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
IA/AT Assessment	4Q							
Critical Design Review (CDR) Hardware	4Q							
Engineering Development Model Development		1Q-4Q						
NCO Algorithm development			1Q-3Q					
System Design Review (SDR)			3Q					
Software Integration (DTP & NCO Algorithms)			2Q-4Q					
Software Specification Review (SSR)			4Q					
Prototype Phase			4Q	1Q-2Q				
Engineering Development Model Hardware				2Q				
Preliminary Design Review (PDR) (S/W)				2Q				
System Development			3Q-4Q	1Q-4Q	1Q-2Q			
Critical Design Review (CDR)					1Q			
Test Readiness Review (TRR)					2Q			
Software Development for D&D				1Q				
Design Testing				2Q-4Q	1Q			
Development Testing					2Q-3Q			
Preproduction Readiness Review (PRR)					4Q			
Operational Testing					4Q	1Q		
Hardware Deliveries					4Q			
Physical Configuration Audit (PCA)						1Q		
Hardware Installs						1Q		
First Deployment						2Q		

Note: This schedule includes efforts funded with the FY06 Congressional Add in this PE 0204136N, Project # 9839.

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Exhibit R-4a, Schedule Detail						DATE: <b>February 2007</b>		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
<b>RDT&amp;E, N / BA-7</b>	0204136N F/A-18 SQUADRONS				1662 F/A-18 Improvements			
Schedule Profile for IRST	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Milestone B (MS B)			3Q					
System Development			3Q-4Q	1Q-4Q	1Q			
System Design Review (SDR)			4Q					
Software Specification Review (SSR)			4Q					
Integrated Baseline Review (IBR)			4Q					
Preliminary Design Review (PDR)				2Q				
Critical Design Review (CDR)				4Q				
Software Delivery 1XXSW (Build 1)					1Q			
Software Delivery 1XXSW (Build 2)					2Q			
Design Readiness Review (DRR)					2Q			
Eng Dev Model (EDM) IRST Delivery - Lab/IT&E (Units 1-2)					2Q			
Eng Dev Model (EDM) IRST Delivery - (Units 3-10)					2Q-3Q			
Developmental Testing (DT-IB)					2Q-3Q			
Test Readiness Review (TRR)					2Q			
Operational Assessment (OA)					3Q			
Milestone C (MS C)						1Q		
Functional Configuration Audit (FCA)						1Q		
Start Low-Rate Initial Production I (LRIP I)						1Q		
Developmental Testing (DT-IIB)						1Q-3Q		
Preproduction Readiness Review (PRR)						2Q		
Operational Testing (OT-IIB)						3Q		
Physical Configuration Audit (PCA)							1Q	
Start Low-Rate Initial Production II							1Q	
Developmental Testing (DT-IIIB)							1Q-2Q	
Developmental Testing/Technical Evaluation (DT-IC/TECHEVAL)							3Q-4Q	
Low-Rate Initial Production I Delivery							3Q-4Q	1Q-2Q
Operational Test Readiness Review (OTRR)							4Q	
Operational Evaluation (OT-IC) (OPEVAL)							4Q	1Q-2Q
Start Low-Rate Initial Production III								1Q
Low-Rate Initial Production II Delivery								3Q-4Q
IOC								3Q

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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2007</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>		PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME 2065 F/A-18 RADAR Upgrade			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
2065 RADAR Upgrade	<b>55.849</b>	<b>6.346</b>	<b>2.941</b>					

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program began in FY1999. 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, 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 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 part obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2007</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME 2065 F/A-18 RADAR Upgrade

**B. Accomplishments/Planned Program**

AESAs Engineering & Mfg Development	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	28.700	6.236	2.881	
RDT&E Articles Quantity				

Continue Engineering Manufacturing Development effort and radar cross-section assessments. Osprey Holstein was reduced in FY06. Osprey Holstein began in FY05 and will complete in FY08.

AESAs Software Dev., Dev. Test, and Integration	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	20.038	0.110	0.060	
RDT&E Articles Quantity				

Continue software development, Development Testing, and systems integration efforts.

AESAs Operational Test	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	7.111			
RDT&E Articles Quantity				

Complete AESA Operational Test and Evaluation.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification	DATE: <b>February 2007</b>
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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME 2065 F/A-18 RADAR Upgrade
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**C. OTHER PROGRAM FUNDING SUMMARY:**

<u>Line Item No. &amp; Name</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>To Complete</u>	<u>Total Cost</u>
F/A-18E/F HORNET (MYP)APN-1 (P-1 Line Item #4)	160.264	130.137	104.961	90.704	114.675	95.127				1026.147
EA-18G APN-1 (P-1 Line Item #2)	16.870	52.054	78.721	99.775	85.006	40.054				372.480
F-18 SERIES MOD APN-5 (P-1 Line Item #32) (OSIP 002-07)		5.448	73.312	89.409	117.482	123.274	50.472	49.937	2.500	511.834

**D. ACQUISITION STRATEGY:**

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. When the program entered production in FY03, the "845" agreement allowed 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.

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**CLASSIFICATION:**

Exhibit R-3 Cost Analysis (page 1)										DATE: <b>February 2007</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-7</b>			0204136N F/A-18 SQUADRONS			2065 F/A-18 RADAR Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	MDA - Boeing, St Louis, MO	442.004	6.236	11/06	2.881	11/07				451.121	451.148
GFE	SS/CPFF	MDA - Boeing, St Louis, MO	3.517								3.517	3.517
Subtotal Product Development			445.521	6.236		2.881		0.000		0.000	454.638	
Software Development	WX	NAWCWD, China Lake, CA	24.958								24.958	
Integrated Logistics Support	WX	Various	1.511								1.511	
Subtotal Support			26.469	0.000		0.000		0.000		0.000	26.469	

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: <b>February 2007</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-7</b>			0204136N F/A-18 SQUADRONS			2065 F/A-18 RADAR Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	Various	75.847								75.847	
Operational Test & Evaluation	WX	OPTEVFOR, Norfolk, VA	15.385								15.385	
Subtotal T&E			91.232	0.000		0.000		0.000		0.000	91.232	
Remarks:												
Program Management Support	Various	NAVAIR Pax River, MD	2.269	0.050	10/06						2.319	
Travel	TO	NAVAIR Pax River, MD	0.544	0.060	10/06	0.060	10/07				0.664	
Subtotal Management			2.813	0.110		0.060		0.000		0.000	2.983	
Remarks:												
Total Cost			566.035	6.346		2.941		0.000		0.000	575.322	
Remarks:												

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EXHIBIT R4, Schedule Profile																	DATE: <b>February 2007</b>															
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME								PROJECT NUMBER AND NAME														
<b>RDT&amp;E, N / BA-7</b>										0204136N F/A-18 SQUADRONS								2065 F/A-18 RADAR Upgrade														
Calendar Year	2006				2007				2008				2009				2010				2011				2012				2013			
Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			
Quarter	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																																
Production Milestones & Radar Deliveries																																
Software Delivery																																
Integrated Test & Evaluation																																
AT Development																																
F/A-18E/F Deliveries	LOT 28(42)				LOT 29(42)				LOT 30(42)				LOT 31(42)																			
Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			



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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2007</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>		PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME 9999 Congressional Adds			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	<b>8.367</b>	<b>8.318</b>						
RDT&E Articles Qty								

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

Congressional Adds

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2007</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-7</b>	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME 9999 Congressional Adds

**B. Accomplishments/Planned Program**

9614: Mil Rapid Response Combat Info Sys	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.635	1.992		
RDT&E Articles Quantity				

The Military Rapid Response-Command and Information System (MRR CIS) is a command, control, and communications mobile ground node that will provide enhanced connectivity between Naval TACAIR (F/A-18) weapon platforms and USMC's Expeditionary Warfare ground C2 nodes such as the On-the-Move Network Digital Over Horizon Radio System (CONDOR) and JFCOM's Rapid Attack Information Dissemination Execution Relay (RAIDER). This funding will be used to perform a initial proof-of-concept demonstration , system engineering and analysis on new technologies with the long range goal of establishing test and evaluation facilities in Hawaii. This work will leverage off of joint service facilities to test the SeaPower 21/ForceNet concepts above.

9839: Network Centric Operations Capability	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	6.732			
RDT&E Articles Quantity				

The Network Centric Operations is a F/A-18 developing interoperability capabilities within the Network Centric operations environment development towards blue force tracker and all weather moving target land attack, and MIDS/JTRS integration.

9A68N: F/A-18 A-D Series Tech Manual Conversion	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		1.345		
RDT&E Articles Quantity				

F/A-18 A-D Series Tech Manual Conversion

9A69N: F/A-18 C/D Digital Electronic Warfare System	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		4.981		
RDT&E Articles Quantity				

F/A-18 C/D Digital Electronic Warfare System