

CLASSIFICATION:

UNCLASSIFIED

[illegible]

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

*Two Multi-Year Procurement E-2C aircraft will be modified to provide RDT&E assets for the E-2 Advanced Hawkeye (Project (E3051).

Project E3051 name formerly known as E2-C Radar Modernization Program has been changed to E-2 Advanced Hawkeye (AHE). The name is being changed in this budget submission to more accurately reflect the fact that, from the outset, this program has planned to build 75 new airframes that will be equipped with the modernized radar system.

The AHE project develops, demonstrates, tests, and procures the replacement of the AN/APS-145 radar system and other aircraft system components that modernize the E-2C weapon system to maintain open ocean mission capability while providing the United States Navy (USN) with an effective littoral surveillance and Theater Air and Missile Defense (TAMD) capability. Key radar technologies are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, high dynamic range digital receivers and Identification Friend or Foe (IFF)/radar aperture integration. The resultant detection system will provide a substantially improved overland performance by correcting current sensor shortfalls and enhancing all current required mission areas, while simultaneously contributing to the emerging TAMD mission requirements.

The AHE project also upgrades or replaces aircraft system components that are either obsolete or becoming unsupportable, upgrades or replaces other aircraft systems as required to support the radar upgrade, and improves the producibility of the weapons system. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture.

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 11)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604234N, E-2C RADAR MODERNIZATION PROGRAM				PROJECT NUMBER AND NAME E3051, E-2 ADVANCED HAWKEYE			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	75.661	111.186	352.298	537.837	502.064	455.795	473.824	220.954
RDT&E Articles Qty						2*	4	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project E3051 name formerly known as E2-C Radar Modernization Program has been changed to E-2 Advanced Hawkeye (AHE). The name is being changed in this budget submission to more accurately reflect the fact that from the outset this program has planned to build 75 new airframes that will be equipped with the modernized radar system.

The AHE project develops, demonstrates, tests, and procures the replacement of the AN/APS-145 radar system and other aircraft system components that modernize the E-2C weapon system to maintain open ocean mission capability while providing the United States Navy (USN) with an effective littoral surveillance and Theater Air and Missile Defense (TAMD) capability. Key radar technologies are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, high dynamic range digital receivers and Identification Friend or Foe (IFF)/radar aperture integration. The resultant detection system will provide a substantially improved overland performance by correcting current sensor shortfalls and enhancing all current required mission areas, while simultaneously contributing to the emerging TAMD mission requirements.

The AHE project also upgrades or replaces aircraft system components that are either obsolete or becoming unsupportable, upgrades or replaces other aircraft systems as required to support the radar upgrade, and improves the producibility of the weapons system. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture.

These technologies were demonstrated in a ground environment in FY1999 and will continue to be refined through FY2003. This P.E. will be utilized for RMP pre-system development and demonstration (Pre-SD&D) in FY2003 followed by SD&D beginning in 3rd quarter FY2003. Program quickly ramps up in FY2004 and FY2005 to support a Preliminary Design Review (PDR) in 1st Qtr FY2005 and a Critical Design Review (CDR) in 1st Qtr FY2006. The program plan begins E-2 AHE Pilot Production in FY2007 (long lead on four aircraft), begins the production phase with a Low-Rate Initial Production (LRIP) Milestone C decision in FY2009, and achieves Initial Operational Capability (IOC) in FY2011. P.E. 0204152N, E-2 Squadrons, also supports the radar risk reduction effort on the NC-130H test bed aircraft.

*Two Multi-Year Procurement E-2C aircraft will be modified to provide RDT&E assets for the AHE program.

R-1 SHOPPING LIST - Item No. 97

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 11)

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604234N, E-2C RADAR MODERNIZATION PROGRAM	PROJECT NUMBER AND NAME E3051, E-2 Advanced Hawkeye																																															
B. Accomplishments/Planned Program																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 02</td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">50.639</td> <td style="text-align: center;">69.404</td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Pre-System Development and Demonstration (Pre SD&D) Award/Extend E-2 AHE Sole Source Pre-SD&D contract to Northrop Grumman Corporation. Began E-2 AHE system architecture trade studies, requirements analysis, radar system demonstration/validation, producibility enhancement and life cycle costs reduction efforts. Fund Radar/Identification Friend or Foe integration, and demonstration/validation of other mission avionics systems.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 20px;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 02</td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td style="text-align: center;">24.296</td> <td style="text-align: center;">299.454</td> <td style="text-align: center;">462.540</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>System Development and Demonstration (SD&D) FY03 - Plan award of SD&D contract with Northrop Grumman Corporation. Enter into SD&D for E-2 AHE program; conduct engineering and development efforts in preparation for System Functional Review for the AHE weapons system. FY04/05 - Continue SD&D effort. Conduct engineering and development efforts in preparation for Preliminary/Critical Design Reviews.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 20px;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 02</td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">1.140</td> <td style="text-align: center;">4.197</td> <td style="text-align: center;">2.114</td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NC-130H FY02 - Provided support for the NC-130H engineering risk reduction efforts. FY03 - Conduct System Requirement Review (SRR) for the NC-130H configuration. Procure long lead material. Design and Fabricate NC-130H Weapon System Pallet. Phase Depot maintenance and conduct government oversight and engineering support. Initiate NC-130H support contract. FY04 -Fund NC-130H AHE Advanced Development Model (ADM) system flight test & test analysis.</p> </div>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	50.639	69.404			RDT&E Articles Quantity						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		24.296	299.454	462.540	RDT&E Articles Quantity						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	1.140	4.197	2.114		RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05																																													
Accomplishments/Effort/Subtotal Cost	50.639	69.404																																															
RDT&E Articles Quantity																																																	
	FY 02	FY 03	FY 04	FY 05																																													
Accomplishments/Effort/Subtotal Cost		24.296	299.454	462.540																																													
RDT&E Articles Quantity																																																	
	FY 02	FY 03	FY 04	FY 05																																													
Accomplishments/Effort/Subtotal Cost	1.140	4.197	2.114																																														
RDT&E Articles Quantity																																																	

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604234N, E-2C RADAR MODERNIZATION PROGRAM	PROJECT NUMBER AND NAME E3051, E-2 Advanced Hawkeye																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">9.277</td><td style="text-align: center;">13.289</td><td style="text-align: center;">50.730</td><td style="text-align: center;">75.297</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	9.277	13.289	50.730	75.297	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	9.277	13.289	50.730	75.297															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 80px; padding: 5px;">NAWCAD Support Fund Government Engineering and Contractor Engineering Support. Perform Government oversight. Fund Ramp up for the Software Functional Review/Preliminary Design Review/Critical Design Review.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">14.605</td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	14.605				RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	14.605																		
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 60px; padding: 5px;">Funded Classified Development.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						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																			
<div style="border: 1px solid black; min-height: 60px;"></div>																			

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604234N, E-2C RADAR MODERNIZATION PROGRAM	PROJECT NUMBER AND NAME E3051, E-2 Advanced Hawkeye		

C. PROGRAM CHANGE SUMMARY:

	FY 2002	FY 2003	FY 2004	FY 2005
Funding:				
Previous President's Budget:	78.306	113.681	162.376	178.872
Current BES/President's Budget	75.661	111.186	352.298	537.837
Total Adjustments	-2.645	-2.495	189.922	358.965
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.672		
Congressional rescissions	-0.167			
SBIR/STTR Transfer	-2.267			
Economic Assumptions	-0.211	-1.823	-8.151	-11.563
Reprogrammings				
Other Navy/OSD Adjustments			198.073	370.528
Congressional increases				
Subtotal	-2.645	-2.495	189.922	358.965

Funding:

PB04 maintains an IOC in FY11, supports Navy Integrated Fire Control, Counter Air (NIFC-CA) timeline, fields single aircraft configuration, minimizes new builds for the Hawkeye 2000, and provides a fly before LRIP buy strategy. Final cost estimate from the OSD Cost Analysis Improvement Group (CAIG) will be completed prior to MS B and reconciled in PR05.

Schedule:

Schedule: The PB03 program schedule has been changed to reflect program restructure. The program was restructured to a single aircraft configuration with a MS B in FY03 and a MS C LRIP decision in FY09. Additionally, pilot production under SD&D begins in FY07 with long lead. MS C LRIP decision is rescheduled to FY09. Initial Operational Capability (IOC) remains in FY11.

Technical:

Technical: In PB03, the program planned to test and deliver two configuration blocks of aircraft. The program was restructured to a single configuration for test and delivery.

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604234N, E-2C RADAR MODERNIZATION PROGRAM	PROJECT NUMBER AND NAME E3051, E-2 Advanced Hawkeye

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
APN-1/E-2C (LI# 13 & 14)	273.668	287.959	228.506	246.098	254.582	221.169	176.684	732.518	8,276.303	10,697.487
APN-5/E-2C (LI# 38)	55.519	23.638	43.139	13.689	12.647	8.265	8.416	8.568	514.343	688.224
APN-6/E-2C (LI# 55)	43.123	20.97	3.675	1.880	7.716	11.739	0.000	17.073	240.729	346.905

Related RDT&E

(U) 0603658N (Ship Self Defense, CEC)

(U) 0204152N (E2 Squadrons)

E. ACQUISITION STRATEGY:

Acquisition Strategy is planned for a second quarter FY03 approval in preparation for a MS B decision in third quarter FY03.

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 6 of 11)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604234N, E-2C RADAR MODERNIZATION PROGRAM			E3051, E-2 Advanced Hawkeye						
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 Dev (Pre-SD&D)	SS/CPFF	CLASSIFIED	14.605								14.605	14.605
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering (Pre-SD&D)	SS/CPFF	NGC, NY	50.639	69.404	10/02						120.043	120.043
Trainer/Trainer Development	TBD	TBD								131.000	131.000	131.000
Licenses												
Tooling												
GFE												
Ancillary Hardware Development	SS/CPFF	NGC, NY	1.140	4.179	01/03	2.114	10/03				7.433	7.433
Primary Hardware Dev (SD&D)	SS/CPAF	NGC, NY		24.296	06/03	299.454	10/03	462.540	10/04	808.012	1,594.302	1,594.302
Contractor Engineering Support	WX	NAWCAD, PAX RIVER, MD	1.600								1.600	
Contractor Engineering Support	CPFF	TBD	0.776	2.200	01/03	2.100	10/03	2.150	10/04		7.226	7.226
Subtotal Product Development			68.760	100.079		303.668		464.690		939.012	1,876.209	
Remarks: Changes in FY2003 since Pres Bud '03: SD&D contract award moved to third quarter FY2003; Pre-SD&D extended.												

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 11)

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 11)

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5			PROGRAM ELEMENT 0604234N, E-2C RADAR MODERNIZATION PROGRAM				PROJECT NUMBER AND NAME E3051, E-2 Advanced Hawkeye					
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
Developmental Test & Evaluation	WR/WX	NAWCAD, PAX RIVER, MD	2.142			6.896	10/03	8.195	10/04	Continuing	Continuing	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Subtotal T&E			2.142	0.000		6.896		8.195		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Management Support	WX/RX	NAWCAD, PAX RIVER, MD	0.149	3.609	01/03	13.722	10/03	24.632	10/04	Continuing	Continuing	
Travel	WX	NAWCAD, PAX RIVER, MD	0.015	0.050	01/03	0.050	10/03	0.050	10/04	Continuing	Continuing	
Transportation												
Subtotal Management			0.164	3.659		13.772		24.682		Continuing	Continuing	
Remarks:												
Total Cost			75.661	111.168		352.298		537.837		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 9 of 11)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												
RDT&E, N / BA-5								0604234N, E-2C RADAR MODERNIZATION PROGRAM												E3051, E-2 Advanced Hawkeye												
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	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							MS B △																					MS C △				
AHE System Development								SFR △				PDR △				CDR △																
EDM AHE Systems Installation																						Two Units △										
Software 1XXSW Delivery 2XXSW Delivery																																
Test & Evaluation Milestones																																
Development Test																																
Operational Test																																
Production Milestones																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 97

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

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 97

UNCLASSIFIED

Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 11 of 11)