CLASSIFICATION:

						DATE:						
						Februa	ry 2004					
				R-1 ITEM NOMEN	CLATURE							
	BA-5	-	0604777N NAVIGATION/ID SYSTEMS									
FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009						
45.080	45.168	28.104	47.752	46.172	47.656	48.600						
13.952	11.347	6.120	9.142	7.162	7.876	8.033						
1.838	1.536	1.811	2.778	3.753	3.829	3.906						
11.344	10.454	5.706	14.399	13.401	13.669	13.942						
17.946	21.831	14.467	21.433	21.856	22.282	22.719						
	FY 2003 45.080 13.952 1.838 11.344	45.080 45.168 13.952 11.347 1.838 1.536 11.344 10.454	FY 2003 FY 2004 FY 2005 45.080 45.168 28.104 13.952 11.347 6.120 1.838 1.536 1.811 11.344 10.454 5.706	BA-5 FY 2003 FY 2004 FY 2005 FY 2006 45.080 45.168 28.104 47.752 13.952 11.347 6.120 9.142 1.838 1.536 1.811 2.778 11.344 10.454 5.706 14.399	BA-5 0604777N NAVIG. FY 2003 FY 2004 FY 2005 FY 2006 FY 2007 45.080 45.168 28.104 47.752 46.172 13.952 11.347 6.120 9.142 7.162 1.838 1.536 1.811 2.778 3.753 11.344 10.454 5.706 14.399 13.401	FY 2003 FY 2004 FY 2005 FY 2006 FY 2007 FY 2008 45.080 45.168 28.104 47.752 46.172 47.656 13.952 11.347 6.120 9.142 7.162 7.876 1.838 1.536 1.811 2.778 3.753 3.829 11.344 10.454 5.706 14.399 13.401 13.669	R-1 ITEM NOMENCLATURE 0604777N NAVIGATION/ID SYSTEMS FY 2003 FY 2004 FY 2005 FY 2006 FY 2007 FY 2008 FY 2009 45.080 45.168 28.104 47.752 46.172 47.656 48.600 13.952 11.347 6.120 9.142 7.162 7.876 8.033 1.838 1.536 1.811 2.778 3.753 3.829 3.906 11.344 10.454 5.706 14.399 13.401 13.669 13.942					

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Reliable and secure Navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. The Photonics Imaging System (0253) is a non-hull penetrating replacement for existing optical periscopes. The Photonics Imaging System exploits a wide portion of the electro-magnetic spectrum utilizing advanced Electro-Optic/thermal imaging; and communications intercept/Electronic Warfare Support (ES). The Combat Identification System (CIS) project (1253) for Mark XIIA, and Improved Identification Development (0676) for AN/UPX-29, covers the Navy lead of a MK XIIA Mode 5 upgrade to the existing Mark XII family of systems that is Joint and NATO interoperable. Per OSD direction, NATO participation is encouraged and performance data is exchanged to ensure the opportunity for interoperability with allied identification systems is maximized. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems).

NAVSTAR Global Positioning System (GPS), project (0921) is a space-based radio positioning and navigation system that provides users with worldwide, all weather, three dimensional position, velocity and precise time data based on a constellation of 24 satellites. Navy Sensor System Interface (NAVSSI) is a system that provides an integrated navigation message structure for network distribution to support combat, information and other mission critical capabilities. Navy Navigation Warfare (NAVWAR) is a key element and subset of the GPS program and provides Air and Sea units with jam resistant GPS antennas and receivers to ensure the continued use of GPS information in a hostile environment.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:						
	PPROPRIATION/BUDGET ACTIVITY PROGRAM ELEMENT NUMBER AND NAME PROJECT NUMBER AND NAME												
APPROPRIATION/BUDGET ACTIVITY													
RDT&E, N / BA-5	-												
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009					
Project Cost		1.838	1.536	1.811	2.778	3.753	3.829	3.906					
RDT&E Articles Qty													

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems). The Improved MK XII (0676) addresses the Navy lead of a MK XIIA Mode 5 Upgrade to the existing Mark XII family of systems that is Joint and NATO interoperable. These funds provide for Mode 5 integration into the AN/UPX-29(V) IFF system which interfaces with the AEGIS baseline weapon system and for other AN/UPX-29(V) improvements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME
RDT&E, N /BA-5	0604777N NAVIGATION/ID SYSTEMS	0676 IMPROVED ID DEVEL	OPMENT

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Mark XIIA Mode 5 Improvement for AN/UPX-29	1.311	0.573	1.385
RDT&E Articles Quantity			

Developed and completed baseline testing of MARK XIIA Mode 5 Improvements to the AN/UPX-29(V) to include land based testing in FY 03.

Continue engineering and integration development of MARK XIIA Improvements to the AN/UPX-29(V); initiate AN/UPX-29(V) Engineering Change Proposal in FY 04.

Complete engineering and integration development of MARK XIIA Improvements to the AN/UPX-29(V) and AN/UPX-29(V) Engineering Change Proposal in FY 05.

	FY 03	FY 04	FY 05
AN/UPX-29(V) Software Devolopement	0.527	0.663	
RDT&E Articles Quantity			

Developed AN/UPX-29(V) system software for interface with AEGIS weapons system in FY 03.

Continue development of MARK XIIA Improvement to the AN/UPX-29(V) system software for interface with AEGIS weapon system and core ILS documents; formalize hardware/software configuration; update technical data as required in FY 04.

	FY 03	FY 04	FY 05
Mark XIIA Mode 5 Development and Operational Test	0.300	0.426	
RDT&E Articles Quantity			

Provide support for MARK XIIA Mode 5 DT/OA in FY 04.

Provide test asset for MARK XIIA Mode 5 DT/OT in FY 04.

Provide support for MARK XIIA Improvements to the AN/UPX-29(V) DT/OT in FY 05.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:			
							Febru	ary 2004	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NU	JMBER AND N	AME			
RDT&E, N / BA-5	0604777N NAVIGATION/ID SYST	ΓEMS		0676 IMPROV	/ED ID DEVEL	OPMENT			
(U) C. PROGRAM CHANGE SUMMARY:									
(U) Funding:	FY 2003	FY 2004	FY 2005						
Previous President's Budget:	1.912	1.553	1.810						
Current BES/President's Budget:	1.838	1.536	1.811						
Total Adjustments	-0.074	-0.017	0.001						
Summary of Adjustments Congressional program reductions Congressional undistributed reductions Congressional rescissions SBIR/STTR Transfer	s	-0.017							
Economic Assumptions									
Reprogrammings	-0.074								
Rescission realignment			0.004						
Reprioritization			-0.001						
Congressional increases Subtotal	-0.074	-0.017	-0.001						
(U) Schedule: Program milestone changes reflect reduced de	velopment funding and extended cr	yptographic de	evelopment/ce	ertification sche	edule.				
(U) Technical: Not applicable.									
(U) D. OTHER PROGRAM FUNDING SUMMARY:								То	Total
Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Complete	Cost
Identification Systems - 42MT	29.668	21.668	18.296	26.237	30.421	30.671	31.405	Continuing	Continuing
								· ·	· ·
	P-1 SH∩DD	INO LIOT I	(NI -	131					

CLASSIFICATION:

EXHIBIT R-2a, RDT&E	Project Justification			DATE:
	-			February 2004
APPROPRIATION/BUDGE	T ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME
RDT&E, N /	BA-5	0604777N NAVIGATION/ID SYSTEMS	0676 IMPROVED ID DEVEL	OPMENT
(U) E. ACQUISITION	STRATEGY:			
The acquisition	strategy is to develop Mode 5 l	ECPs (Engineering Change Proposals) for modern Mark XII IFF (lo	dentification Friend or Foe) equipme	ent and integrate into all Navy Combat

CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (pa	age 1)									February 200)4	
APPROPRIATION/BUDGET ACTI		PROGRAM	ELEMENT			PROJECT NU	JMBER AND I	NAME		•		
RDT&E, N / BA-5		0604777N N	AVIGATION/ID	SYSTEMS		0676 IMPRO\	VED ID DEVE	LOPMENT				
Cost Categories	Contract	Performing	Total		FY 03		FY 04		FY 05			
	Method	Activity &	PY s	FY 03	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
Primary Hardware Development	WR	NAWCAD, MD	0.883	3						Continuing	Continuing	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000)
Ship Integration	WR	NAWCAD, MD		0.300	11/02	0.160	11/03	0.300	11./04	Continuing	Continuing	
Ship Suitability											0.000	
Systems Engineering	WR	NAWCAD, MD		0.719	11/02	0.426	11/03	0.695	11/04	Continuing	Continuing	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000)
Award Fees											0.000)
Subtotal Product Development			0.883	1.019		0.586	6	0.995		Continuing	Continuing	
Remarks:												

Development Support											0.000	
Software Development	WR	NAWCAD, MD	0.778	0.527	11/02	0.333	11/03			Continuing	Continuing	
Integrated Logistics Support	WR	NAWCAD, MD		0.192	11/02	0.179	11/03	0.350	11/04	Continuing	Continuing	
Configuration Management	WR	NAWCAD, MD				0.050	11/03	0.050	11/04	Continuing	Continuing	
Technical Data	WR	NAWCAD, MD		0.100	11/02	0.088	11/03	0.100	11/04	Continuing	Continuing	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.778	0.819		0.650	•	0.500	•	Continuing	Continuing	

Remarks:

CLASSIFICATION:

									DATE:				
Exhibit R-3 Cost Analysis (pa	ge 2)										February 200	04	
APPROPRIATION/BUDGET ACTIV	/ITY		PROGRAM EL				PROJECT N						
RDT&E, N / BA-5	1_	1	0604777N NA\		SYSTEMS	1	0676 IMPRO		LOPMENT	I	1		
Cost Categories	Contract Method & Type	Performing Activity & Location	I	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	NAWCAD, M					0.050	11/03	0.100	11/04	Continuing	Continuing	1
Operational Test & Evaluation	WR	NAWCAD, M							0.216		Continuing	-	
Live Fire Test & Evaluation		Í										0.000	
Test Assets	WR	NAWCAD, M	D				0.250	11/03				0.250	,
Tooling												0.000	,
GFE												0.000	,
Award Fees												0.000	,
Subtotal T&E				0.000	0.000)	0.300)	0.316		Continuing	Continuing	,
					_			_					
Contractor Engineering Support												0.000	
Government Engineering Support												0.000)
Program Management Support												0.000)
Travel												0.000)
Transportation												0.000	
												0.000)
Subtotal Management				0.000	0.000)	0.000)	0.000		Continuing	Continuing	į į
Remarks:													
Total Cost				1.661	1.838	3	1.536	3	1.811		Continuing	Continuing	J
Remarks:													

CLASSIFICATION:

EXHIBIT R4, Schedule	Profile																				DATE	≣:	F	ebrua	rv 20	104		
APPROPRIATION/BUDGET	ACTIVI	TY			PROC	SRAM	ELEM	ENT N	IUMBE	R ANI	O NAM	E					PROJ	IECT N	IUMBE	R AN	D NAN	ИΕ	•	CDIUC	ıı y Zu	/04		
RDT&E, N / BA-5					06047	77N N	IAVIG	ATION	/ID SY	STEM	S						0676 I	IMPRO	OVED I	D DE\	/ELOF	PMENT	Γ					
							0.4				0.5		2006												2009			
Fiscal Year		20	03	1		20	04	1		20	05			20	06	ı		20	07			20	08	ı		20	J9 	
	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
Milestones			MS B									MS _	c						FF	RPDR	& 10C	;						
Contracts & Deliverables	Г	I Deliv	ery wi	th Cryp	oto Em	Î	h	1832 [Delivery				ware (DI, CX IP Cor				LRIP [Deliver	ies(DI,	CXP,	, RT-18	332)	^				
Development & Engineering	Risk F	teduct	ion				CSE	DS				Prepa	re & E		e ECP	s												
Integration	Integra			istallat	ion & (Check							nstalla		Check	out								Produ	ction L	ine Ins	ertion	
Test & Evaluation Milestones Development Test									рт.	OTRF								DТ-С ^л										
Operational Test								R-1		ОТ	·B1								T-C1									

 $^{^{\}star}$ Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE:	February 20	04				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT		PROJECT NU	JMBER AND N		<u> </u>				
RDT8BA-5	0604777N NA	VIGATION/ID	SYSTEMS	0676 IMPROV	ED ID DEVELOPMENT						
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009				
Risk Reduction	1Q-3Q										
Milestone B (MS B)	3Q										
CXP & RT-1832 Deliveries with Crypto Emulator		1Q									
DI Delivery with Crypto Emulator		3Q									
Integration with Host Equipment		1Q-4Q									
Prepare & Evaulate ECPs		3Q-4Q	1Q-3Q								
Combat Systems Engineering Development Site (CSEDS)		3Q									
Installation & Checkout		3Q-4Q		4Q							
Host Platform Integrations		3Q-4Q	1Q-4Q	1Q-3Q							
Developmental Testing (DT-B1)		4Q	1Q								
Deliver Prototype Hardware (DI, CXP, RT-1832)			1Q								
Operational Test Readiness Review (OTRR)			1Q								
Operational Testing (OT-B1)			2Q								
Surface Combat Systems Center (SCSC)			4Q								
Milestone C (MS C)			4Q								
Integrated Combat Systems Test Facility (ICSTF)				1Q							
Low-Rate Initial Production Contract Award				1Q							
Low-Rate Initial Production Deliveries (CXP, DI, RT-1832)				4Q	1Q-4Q	1Q-4Q					
Technical Evaluation (DT-C1)					1Q						
Operational Test Readiness Review (OTRR)					2Q						
Operational Evaluation (OT-C1)					2Q						
IOC					4Q						
Full Rate Production Decision Review (FRPDR)					4Q						
Production Line Insertion						1Q-3Q					

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMI	ENT NUMBER AND	NAME		PROJECT NUMBE	R AND NAME		
RDT&E, N / BA-5	0604777N NAVIG	ATION/ID SYSTEM	IS		1253 COMBAT ID	SYSTEMS		
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		11.344	10.454	5.706	14.399	13.401	13.669	13.942
RDT&E Articles Qty			28					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

In 1995, the Under Secretary of Defense (Acquisition and Technology)/Vice Chairman, Joint Chiefs of Staff [USD(A&T)/VCJCS] tasked the Services to develop a high-level plan and long-range strategy for migrating to new digital Mark XII equipment. The services were also tasked to work with participating NATO Allies to develop a new MK XII waveform and document it in a NATO Standard Agreement (STANAG). The Navy took the lead in a waveform development effort conducted in coordination with a Five-Nation Technical Working Group (TWG), supported by Joint Services and Industry. The Navy, in conjunction with the TWG, designed, developed, modeled, and tested a new waveform – MK XIIA Mode 5. A separate Five-Nation Communication Security (COMSEC) group, led by the National Security Administration (NSA), developed a new cryptographic algorithm and associated Cryptographic Equipment Interoperability Requirements Specification. STANAG 4193, Part V has been ratified and promulgated to all NATO nations, and Part VI was approved for promulgation in January 2002.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME
RDT&E, N / BA -5	0604777N NAVIGATION/ID SYSTEMS	1253 COMBAT ID SYSTEM	5

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Mode 5 prototype hardware & cryptographic module	7.065	6.040	2.281
RDT&E Articles Quantity		28	

Designed and developed prototype Mode 5 ECP kits (Mode 5 processor card, software mode 5 cryptography and cryptographic emulator) in FY03. Design and develop lab-based Electronic Test Equipment (ETE) kits in FY03 to support integration and developmental test and evaluation. Continue development of kits for installation into existing fleet assets (AN/UPX-37 Interrogator, AN/APX-118 Common Digital Transponder, the RT-1832/APX Transponder) in FY04. Repair any deficiencies identified during testing in FY05 to support Milestone C.

	FY 03	FY 04	FY 05
Mode 5 systems engineering	3.487	1.492	1.585

Perform systems engineering in support of the Mode 5 hardware/software development efforts on the the AN/UPX-37 Interrogator, AN/APX-118 Common Digital Transponder, the RT-1832/APX Transponder, cryptographic module and Electonic Test Equipment (ETE) during FY03 through FY05.

	FY 03	FY 04	FY 05
Conduct DT & OT of the Mode 5 upgrade	0.792	2.922	1.840

Conducted test preparations in FY03. Mode 5 Developmental and Operational test phases for the AN/UPX-37 Interrogator, AN/APX-118 Common Digital Transponder, the RT-1832/APX Transponder, cryptographic module and ETE in FY04 and FY05.

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:			
							Febru	ıary 2004	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NU	JMBER AND N	AME			
RDT&E, N / BA-5	0604777N NAVIGATION/ID SYS	TEMS		1253 COMBA	T ID SYSTEMS	3			
(U) C. PROGRAM CHANGE SUMMARY:									
(U) Funding:	FY 2003	FY 2004	FY 2005						
Previous President's Budget:	10.693	10.572	5.750						
Current BES/President's Budget:	11.344	10.454	5.706						
Total Adjustments	0.651	-0.118	-0.044	•					
Summary of Adjustments									
Congressional program reductions									
Congressional undistributed reduction	S	-0.118							
Congressional Recissions									
SBIR/STTR Transfer	-0.170								
Economic Assumptions			-0.005						
Reprogrammings	0.821								
Recission Realignment									
Reprioritization			-0.039						
Subtotal	0.651	-0.118	-0.044						
(U) Schedule:									
Program milestone changes reflect reduced d	evelopment funding and extended o	ryptographic d	evelopment/c	certification sch	nedule.				
(U) Technical: Not applicable.									
(U) D. OTHER PROGRAM FUNDING SUMMARY:								_	
Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To <u>Complete</u>	Total <u>Cost</u>
Identification Systems - 42MT	29.668	21.668	18.296	26.237	30.421	30.671	31.405	Continuing	Continuing
	R-1 SH∩DD	INO LIOT '	(NI -	131					

R-1 SHOPPING LIST - Item No. 131

Exhibit R-2a, RDTEN Project Justification (Exhibit R-2a, page 12 of 38)

CLASSIFICATION:

XHIBIT R-2a, RDT&	E Project Justification		DATE:
PPROPRIATION/BUDGE	T ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	February 2004 PROJECT NUMBER AND NAME
DT&E, N /	BA-5	0604777N NAVIGATION/ID SYSTEMS	1253 COMBAT ID SYSTEMS
(U) E. ACQUISITION	STRATEGY: *		
		ECPs (Engineering Change Proposals) for modern Mark XII IFF (Id Navy's Cooperative Identification Capability to Mode 5.	dentification Friend or Foe) equipment and integrate into all Navy Combat
-			

CLASSIFICATION:

										DATE:				
Exhibit R-3 Cost Analysis (pag	ge 1)											February 20	04	
APPROPRIATION/BUDGET ACTIV	ITY		PROGRAM E	LEMENT				PROJECT N	UMBER AND	NAME				
RDT&E, N / BA-5			0604777N NA	VIGATION/	ID SYSTEM	/IS		1253 COMBA	AT ID SYSTE	MS				
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	VAR	VAR		2.7	'35	7.065	05/03	6.040	12/03	2.281	12/04	Continuing	Continuing	
Primary Hardware Dev, Electronics													0.000	
Aircraft Integration													0.000	1
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	WR	NAWCAD, MI)	1.1	75	2.105	11/02	0.348	3 12/03	0.288	12/04	Continuing		
Training Development												-	0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	1
Award Fees													0.000	
Subtotal Product Development				3.9	910	9.170)	6.388	8	2.569	9	Continuino	Continuing	
Development Support													0.000)
Software Development, Electronics				2.9	933							Continuing	Continuing	
Integrated Logistics Support	WR	NAWCAD, MD		0.1	145	0.172	11/02					Continuing	Continuing	
Configuration Management													0.000	
Technical Data				0.0	053							Continuing	Continuing	
Studies & Analyses													0.000	
GFE													0.000)
Award Fees													0.000	
Subtotal Support				3.1	131	0.172	2	0.000	o	0.000)	Continuing	Continuing	
Remarks:														

CLASSIFICATION:

								DATE:							
Exhibit R-3 Cost Analysis (pag	je 2)									February 200)4				
APPROPRIATION/BUDGET ACTIV	ITY	PROGRAM E	LEMENT			PROJECT NU	IMBER AND I	NAME		•					
RDT&E, N / BA-5		0604777N NA	VIGATION/ID	SYSTEMS		1253 COMBA	T ID SYSTEM								
Cost Categories	Contract	Performing	Total		FY 03		FY 04		FY 05						
	Method	Activity &	PY s	FY 03	Award		Award		Award	Cost to	Total	Target Value			
	& Type	Location	Cost	Cost	Date		Date		Date	Complete	Cost	of Contract			
Developmental Test & Evaluation	WR	NAWCAD, MD	0.850	0.79	2 11/02	2.922	12/03	0.882	12/04	Continuing	Continuing				
Operational Test & Evaluation	WR	NAWCAD, MD						0.958	12/04	Continuing	Continuing				
Live Fire Test & Evaluation											0.000				
Test Assets											0.000				
Tooling											0.000				
GFE											0.000				
Award Fees											0.000				
Subtotal T&E			0.850	0.79	2	2.922		1.840		Continuing	Continuing				
Contractor Engineering Support			0.450)							0.450				
Government Engineering Support	WR	NAWCAD, MD	0.918	0.44	6 11/02	0.447	12/03	0.558	12/04	Continuing	Continuing				
Program Management Support	WR	NAVAIR, MD	0.60	0.69	9 11/02	0.657	12/03	0.699	12/04	Continuing	Continuing				
Travel	WR	NAVAIR, MD	0.060	0.06	5 11/02	0.040	12/03	0.040	12/04	Continuing	Continuing				
Transportation											0.000				
											0.000				
Subtotal Management			2.03	1.2	0	1.144		1.297		Continuing	Continuing				
Remarks:															
Total Cost			9.92	11.34	4	10.454		5.706		Continuing	Continuing				
Remarks:															

CLASSIFICATION:

EXHIBIT R4, Schedule	Profile																				DATE	:	F	ebrua	rv 20	004		
APPROPRIATION/BUDGE	C ACTIV	ITY			PROC	GRAM	ELEM	ENT N	IUMBE	R ANI	D NAM	ΙE					PROJ	IECT N	IUMBE	R ANI	D NAN	ЛE	•	- 2. 30	,			
RDT&E, N / BA-5					06047	777N N	NAVIG	ATION	/ID SY	STEM	S						1253	СОМВ	AT ID	SYSTE	SYSTEMS							
Fiscal Year		20	03			20	04			20	05			20	06			20	07			20	08		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
Milestones			MS B									MS _	c						FF	RPDR	& IOC							
Contracts & Deliverables	С	I Deli	ery wi	th Cryp	oto Em	Ī	h	1832 [ware (DI, CX IP Cor				LRIP [Deliver	ies(DI,	CXP,	RT-18	332)	^				
Development & Engineering	Risk F	leduct	ion				CSI	Ds				Prepa	re & E		e ECP	S												
Integration	Integra			istallat	ion & (Check							nstalla		Check	out								Produ	ction L	ine Ins	sertion	
Test & Evaluation Milestones Development Test Operational Test			USCFIC		integra	auoris			рт-	B1 OTRF								DT-C ¹										

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

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						ebruary 20	04				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT		PROJECT NU	JMBER AND NAME						
RDT8BA-5	0604777N NA	VIGATION/ID	SYSTEMS	1253 COMBA	T ID SYSTEMS						
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009				
Risk Reduction	1Q-3Q										
Milestone B (MS B)	3Q										
CXP & RT-1832 Deliveries with Crypto Emulator		1Q									
DI Delivery with Crypto Emulator		3Q									
Integration with Host Equipment		1Q-4Q									
Prepare & Evaulate ECPs		3Q-4Q	1Q-3Q								
Combat Systems Engineering Development Site (CSEDS)		3Q									
Installation & Checkout		3Q-4Q		4Q							
Host Platform Integrations		3Q-4Q	1Q-4Q	1Q-3Q							
Developmental Testing (DT-B1)		4Q	1Q								
Deliver Prototype Hardware (DI, CXP, RT-1832)			1Q								
Operational Test Readiness Review (OTRR)			1Q								
Operational Testing (OT-B1)			2Q								
Surface Combat Systems Center (SCSC)			4Q								
Milestone C (MS C)			4Q								
Integrated Combat Systems Test Facility (ICSTF)				1Q							
Low-Rate Initial Production Contract Award				1Q							
Low-Rate Initial Production Deliveries (CXP, DI, RT-1832)				4Q	1Q-4Q	1Q-4Q					
Technical Evaluation (DT-C1)					1Q						
Operational Test Readiness Review (OTRR)					2Q						
Operational Evaluation (OT-C1)					2Q						
IOC					4Q						
Full Rate Production Decision Review (FRPDR)					4Q						
Production Line Insertion						1Q-3Q					

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	IENT NUMBER AND	NAME		PROJECT NUMBE	R AND NAME		
RDT&E, N / BA-5	0604777N NA\	/IGATION / ID SYST	ΓEMS		0253 Navigation	and Electro-Optica	l Support	
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		13.952	11.347	6.120	9.142	7.162	7.876	8.033
RDT&E Articles Qty								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navigation and Electro-Optical Support program develops Submarine Electro-Optical and imagery systems and equipment that will improve submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), and tactical control (contact management in the littorals). The Photonics Imaging System, mounted on the Universal Modular Mast will provide imaging capability for the VIRGINIA class submarine. The Photonics Imaging System design exploits a wide portion of the electro-magnetic spectrum through advanced Electro-Optical and thermal imaging and Electronic Warfare Support (ES)/Communications intercept. It will provide significant improvements in submarine stealth and infrared imaging capability. The non-hull penetrating design provides freedom in ship design and space savings for VIRGINIA CLASS and future submarines designs. The system was designed to satisfy Operational Requirement #365-87-94. Specific efforts include: (1) Photonics Imaging System On-Board Team Trainer Development (2) Photonics Imaging System At Sea Test And Evaluation (3) Photonics Imaging System Sensors and image processing improvements. By OPNAV Ltr Ser. N77/3U629209, 12 June 2003, OPNAV N77 established the Integrated Submarine Imaging System (ISIS) to rapidly field the Type 18 Periscope Patriot Rangefinder, Type 8IR Periscope, and the Submarine Common Imaging System (SCIS) and supports high intensity operations in the littoral and provides the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. Specific efforts undertaken to meet the ISIS requirements are: (1) Type 18 Periscope Automated Range Finder development. (2) Submarine Common Imagery System Development of capabilities common to ISIS and Photonics, include: image stitching, high resolution imaging, automatic visual detection, tracking and classification capabilities.

CLASSIFICATION:

ROGRAM ELEMENT NUMBER AND NAME 604777N NAVIGATION / ID SYSTEMS FY 03 0.422	PROJECT NUMBER AND N 0253 Navigation and Elect		
FY 03	FY 04		
		FY 05	
		FY 05	
		FY 05	
0.422	0.204		
	0.391	0.130	
ont			
ant.			
FY 03	FY 04	FY 05	
0.703			
FY 03	FY 04	FY 05	
0.830			
- · · ·	0.703	FY 03 FY 04 0.703	FY 03 FY 04 FY 05 0.703

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:	
							February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM	ELEMENT NUM	IBER AND NAME	PROJ	ECT NUMBER AND N	IAME	
RDT&E, N /BA-5	0604777N	NAVIGATION	/ ID SYSTEMS	0253	Navigation and Elec	tro-Optical Support	
(U) B. Accomplishments/Planned Program							
(0) B. Accomplishments/Planned Program							
			FY 03		FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost			3.891		5.429	3.939	
RDT&E Articles Quantity							
Commence development of capabilities common to	ISIS and Pho	tonics, including	: image stitching, high res	olution im	aging, automatic visua	al detection, tracking	and classification capabilities.
	1					T	
Accomplishments/Effort/Subtotal Cost			FY 03 0.957		FY 04 0.000	FY 05	
RDT&E Articles Quantity			0.957		0.000		
TO TOE AND OUT QUARTER				l l			
Performed Systems Engineering for Automated Ra	ngefinder for T	Type 18 Perisco	pe development.				
L							
			FY 03		FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost			3.561		3.556	2.051	
RDT&E Articles Quantity							
Develop Low Light Level TV, improved image proces	ssing, and Pho	otonics imaging	System all digital signal p	atn.			

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justificat	on			DATE:	
	T		T		ry 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	R AND NAME	PROJECT NUMBER AND N		
RDT&E, N /BA-5	0604777N NAVIGATION / ID	SYSTEMS	0253 Navigation and Elec	tro-Optical Support	
(U) B. Accomplishments/Planned Program					
· · · · · · · · · · · · · · · · · · ·					
		FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost		0.167	1.971		
RDT&E Articles Quantity					
Complete Photonics Imaging System EDM Sh	ock Test and convert to the configuration	n control model.			
		FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost		3.421			
RDT&E Articles Quantity					
Constituted Districts FOM Desferons Land	(DEDI) development				
Completed Photonics ESM Performance Impro	ovement (PEPI) development.				

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

PROPRIATION/BUDGET ACTIVITY PROGRAM ELEMENT NUMBER AND NAME PROJECT NUMBER AND NAME 0253 Navigation and Electro-Optical Support	EXHIBIT R-2a, RDT&E Project Justification					DATE:	February 2004
DT&E, N / BA-5	APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	MBER AND NAME	le.	PROJECT NUMB	EFR AND NAME	rebluary 2004
(U) C. PROGRAM CHANGE SUMMARY: (U) Funding: Previous President's Budget: (FY 04/05 President's Budget Controls) Previous President's Budget: (FY 04/05 President's Budget Controls) 14,282 11,474 6,120 Current BES/President's Budget: (FY 05 President's Budget Controls) 13,352 11,347 6,120 Total Adjustments SIRINSTITE Transfer -0,273 0,000 0,000 BSO Adjustments -0,037 0,000 0,000 MANPOWER -0,000 0,000 0,000 0,000 0,000 MANPOWER -0,000 0,000 0,000 0,000 0,000 MANPOWER -0,000 0,000 0,000 0,000 0,000 0,000 Section 8094 Management Improvements 0,000 0,000 0,000 Sec. 8126: Efficiencies/Revisions 0,000 0,000 0,001 WCF -Rab -NAWC -PBD 430 0,000 0,000 0,001 Rates -NAWC - PBD 430 0,000 0,000 0,001 MCF -Rab -NUWC -PBD 430 0,000 0,000 0,001 Inflation 0,000 0,000 0,000 0,001 Issue 69707 FYOS FIR RDTEN Balancing 0,000 0,000 0,000 (U) Schedule: Not applicable (U) Technical:							
(U) Funding: Fresident's Budget: (FY 04/05 President's Budget Controls) 14,282 11,474 6,249 Current BES/President's Budget: (FY 05 President's Budget Controls) 13,852 11,347 6,120 Total Adjustments -0.310 -0.127 -0.129 Summary of Adjustments SBIR/STTR Transfer -0.037 0.000 0.000 BSO Adjustments -0.037 0.000 0.000 -0.000 MAIPOWER -0.000 0.000 0.000 -0.014 NWCP Rates -NAWC Rates 0.000 0.000 0.000 -0.014 NWCP Rates -NAWC Rates 0.000 0.000 0.000 0.000 Sec. B128: Efficiencies/Revisions 0.000 0.000 0.0013 WCF - RaD -NAWC - PBD 430 0.000 0.000 0.0013 WCF - RAD -NAWC - PBD 430 0.000 0.000 0.0014 Inflation 0.000 0.000 0.0014 Inflation 0.000 0.000 0.0014 Inflation 0.000 0.000 0.000 0.000 0.00014 Inflation 0.000 0.000 0.000 0.000 0.00014 Inflation 0.000 0.000 0.00014 Inflation 0.000 0.000 0.00014 Inflation 0.000 0.000 0.00014 Inflation 0.000 0.00014 Inflation 0.000 0.00014 Inflation 0.000 0.00014 Inflation	NDIAE, N / BA-3	U004777N NAVIGATION	N/ID STSTEMS	Į.	1253 INAVIGATIO	n and Electro-Optical Support	
Previous President's Budget: (FY 04/05 President's Budget Controls) Current BES/President's Budget: (FY 05 President's Budget Controls) Total Adjustments Summary of Adjustments SBIR/STIR Transfer -0.273 -0.000 -0	(U) C. PROGRAM CHANGE SUMMARY:						
Current BES/President's Budget: (FY 05 President's Budget Controls) Total Adjustments Summary of Adjustments SBIR/STR Transfer BSO Adjustments SIR/STR Transfer BSO Adjustments SIR/STR Transfer BSO Adjustments SIR/STR Transfer BSO Adjustments -0.037 0.000 0.000 MANPOWER 0.000 0.000 0.000 MOYER Rates - NUWC Rates 0.000 0.000 0.000 Section 8094: Management Improvements 0.000 0.000 Section 8094: Management Improvements 0.000 0.000 WCF - R&D - NUWC - PBD 430 WCF - R&D - NUWC - PBD 430 NUF - R&D - NUWC - PBD 430 Rates - NAWC Inflation 0.000 0.000 0.000 Rates - NAWC Inflation 0.000 0.000 0.000 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 0.000 CUJ - 0.012 (U) Schedule: Not applicable	(U) Funding:		FY 2003	FY 2004	FY 2005		
Summary of Adjustments SairNSTTR Transfer -0.273 0.000 0.000	Previous President's Budget: (FY 04/05 President's	Budget Controls)	14.262	11.474	6.249		
Summary of Adjustments	Current BES/President's Budget: (FY 05 President'	s Budget Controls)	13.952	11.347			
SBIR/SITR Transfer BSO Adjustments -0.037 0.000 0.000 MANPOWER 0.000 0.000 -0.0114 NWCF Rates - NAWC Rates 0.000 0.000 -0.004 NWCF Rates - NUWC Rates 0.000 0.000 -0.004 Section 8094: Management Improvements 0.000 -0.030 0.000 Sec. 8126: Efficiencie-Revisions 0.000 -0.097 0.000 WCF - R&D - NAWC - PBD 430 0.000 0.000 WCF - R&D - NUWC - PBD 430 0.000 0.000 0.001 Rates - NAWC 0.000 0.000 0.001 Rates - NAWC 0.000 0.000 0.001 Inflation 0.000 0.000 0.001 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 0.000 UU) Schedule: Not applicable	Total Adjustments		-0.310	-0.127	-0.129		
SBIR/SITR Transfer BSO Adjustments -0.037 0.000 0.000 MANPOWER 0.000 0.000 -0.0114 NWCF Rates - NAWC Rates 0.000 0.000 -0.004 NWCF Rates - NUWC Rates 0.000 0.000 -0.004 Section 8094: Management Improvements 0.000 -0.030 0.000 Sec. 8126: Efficiencie-Revisions 0.000 -0.097 0.000 WCF - R&D - NAWC - PBD 430 0.000 0.000 WCF - R&D - NUWC - PBD 430 0.000 0.000 0.001 Rates - NAWC 0.000 0.000 0.001 Rates - NAWC 0.000 0.000 0.001 Inflation 0.000 0.000 0.001 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 0.000 UU) Schedule: Not applicable	Summary of Adjustments						
BSO Adjustments			-0 273	0.000	0.000		
MANPOWER NWCF Rates - NAWC Rates 0.000 0.001 0.							
NWCF Rates - NAWC Rates							
NWCF Rates - NUWC Rates 0.000 0.000 -0.004 Section 8094: Management Improvements 0.000 -0.030 0.000 Sec. 8126: Efficiencies/Revisions 0.000 -0.000 0.000 WCF - R&D - NAWC - PBD 430 0.000 0.000 -0.001 Rates - NAWC 0.000 0.000 -0.001 Inflation 0.000 0.000 -0.014 Inflation 0.000 0.000 -0.006 non purchase inflation 0.000 0.000 -0.003 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 -0.004 Subtotal -0.310 -0.127 -0.129 (U) Schedule: Not applicable (U) Technical:							
Section 8094: Management Improvements 0.000 -0.030 0.000 Sec. 8126: Efficiencies/Revisions 0.000 -0.097 0.000 WCF - R&D - NAWC - PBD 430 0.000 0.000 0.001 WCF - R&D - NAWC - PBD 430 0.000 0.000 -0.001 Rates - NAWC 0.000 0.000 0.014 Inflation 0.000 0.000 -0.016 non purchase inflation 0.000 0.000 -0.003 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 -0.0127 -0.129 (U) Schedule: Not applicable							
Sec. 8126: Efficiencies/Revisions 0.000 WCF - R&D - NAWC - PBD 430 0.000 0.000 0.000 0.000 0.001 Rates - NAWC 0.000 0.000 0.000 0.000 0.014 Inflation 0.000 0.000 0.000 0.000 0.000 0.000 0.016 Indiation 0.000 0							
WCF - R&D - NAWC - PBD 430 0.000 0.000 0.013 WCF - R&D - NUWC - PBD 430 0.000 0.000 0.000 0.001 Rates - NAWC 0.000 0.000 0.000 0.014 Inflation 0.000 0.000 0.000 -0.016 non purchase inflation 0.000 0.000 0.000 -0.003 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 -0.027 0.0129 (U) Schedule: Not applicable (U) Technical:							
Rates - NAWC Inflation 0.000 0.000 0.000 -0.016 non purchase inflation 0.000 0.000 0.000 -0.003 Issue 69707 FY05 ITR RDTEN Balancing Subtotal 0.000 0.000 0.000 -0.004 -0.310 -0.127 -0.129 (U) Schedule: Not applicable (U) Technical:	WCF - R&D - NAWC - PBD 430		0.000	0.000			
Inflation	WCF - R&D - NUWC - PBD 430		0.000	0.000	-0.001		
non purchase inflation 0.000 0.000 -0.003 Issue 69707 FY05 ITR RDTEN Balancing 0.000 0.000 -0.004 Subtotal -0.310 -0.127 -0.129 (U) Schedule: Not applicable (U) Technical:	Rates - NAWC		0.000	0.000	0.014		
Issue 69707 FY05 ITR RDTEN Balancing	Inflation		0.000	0.000	-0.016		
Subtotal -0.310 -0.127 -0.129 (U) Schedule: Not applicable (U) Technical:	non purchase inflation		0.000	0.000	-0.003		
Subtotal -0.310 -0.127 -0.129 (U) Schedule: Not applicable (U) Technical:	Issue 69707 FY05 ITR RDTFN Balancing		0.000	0.000	-0.004		
Not applicable (U) Technical:	•						
Not applicable (U) Technical:							
(U) Technical:	(U) Schedule:						
	Not applicable						
	(II) Technical:						
Not applicable	• •						
	Not applicable						

CLASSIFICATION:

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

PROPRIATION/BUDGET ACTIVITY	PROGRAM ELE	MENT NUMBE	R AND NAME	Ir	PROJECT NUME	BER AND NAM	F	February	2007
DT&E, N / BA-5	0604777N NA	AVIGATION / II	JSYSTEMS	L L	0253 Navigation	on and Electro-	Optical Suppo	DΓT	
D. OTHER PROGRAM FUNDING SUMMARY:									
								То	Total
Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	<u>Complete</u>	<u>Cost</u>
(U) SCN Line 201300 (Photonics Mast only)	22.556	18.865	19.208	19.558	19.665	20.039	49.144	Continuing	Continuing
OPN Line 083100 (PL018, PL021 & PL022)	5.705	16.596	50.700	61.361	51.804	47.174	45.104	Continuing	Continuing
OPN Line 083105	0.000	0.100	0.945	4.159	7.411	5.715	4.860	Continuing	Continuing
(U) Related RDT&E									
(U) PE 0604558N									
(The VIRGINIA Class Design Development)	5.106	1.159	1.171	1.183	.188	.196	.202	Continuing	Continuing
E. ACQUISITION STRATEGY: *									
Not applicable									

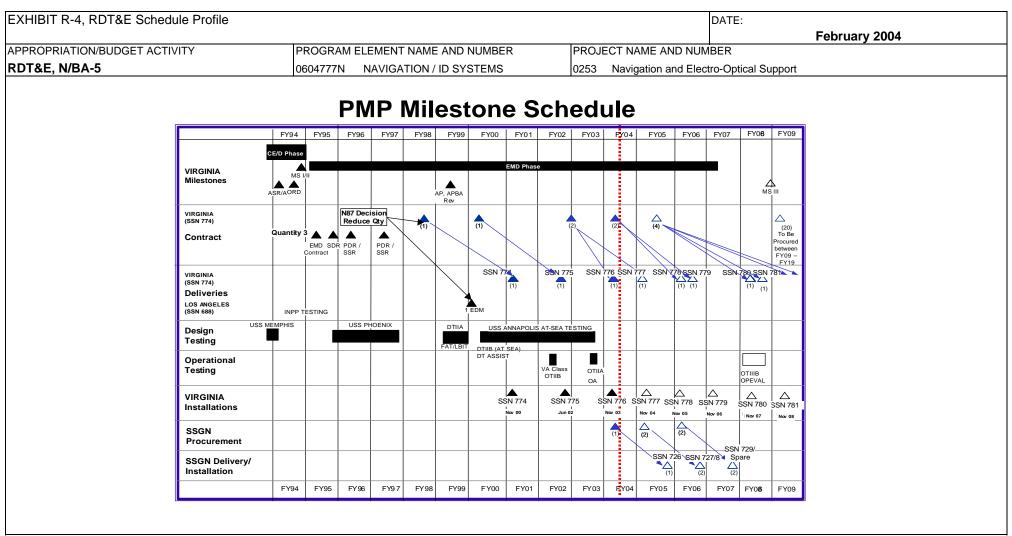
CLASSIFICATION:

Total PY's Cost 34	FY 0 Cost 4.962 5.922	03	FY 03 Award Date 10/02 10/02	PROJECT NU 0253 Navig FY 04 Cost 6.188 1.149	ation and Elect FY 04 Award Date 10/03	tro-Optical Supp FY 05	oort FY 05 Award Date 10/04 10/04	Cost to Complete Continuing	Total Cost Continuing Continuing 0.000 0.000	Target Value of Contract
0604777N NAVIGAT Total PY's Cost 34	FY 0 Cost 4.962	03 t 8.489 1.477 2.567	Award Date 10/02 10/02 10/02	0253 Navig FY 04 Cost 6.188 1.149	ation and Elect FY 04 Award Date 10/03	FY 05 Cost 3.256 0.430	FY 05 Award Date 10/04 10/04	Complete Continuing Continuing	Cost Continuing Continuing 0.000	of Contract
Total PY's Cost 34	FY 0 Cost 4.962	03 t 8.489 1.477 2.567	Award Date 10/02 10/02 10/02	FY 04 Cost 6.188 1.149	FY 04 Award Date 10/03 10/03	FY 05 Cost 3.256 0.430	FY 05 Award Date 10/04 10/04	Complete Continuing Continuing	Cost Continuing Continuing 0.000	of Contract
PY s Cost 34 wport, RI	Cost 4.962 5.922	2.567	Award Date 10/02 10/02 10/02	6.188 1.149	Award Date 10/03 10/03	FY 05 Cost 3.256 0.430	Award Date 10/04 10/04	Complete Continuing Continuing	Cost Continuing Continuing 0.000 0.000	of Contract
wport, RI	5.922	8.489 1.477 2.567	10/02 10/02 10/02	6.188 1.149	10/03 10/03	3.256 0.430	10/04	Continuing Continuing	Continuing Continuing 0.000 0.000	
wport, RI	5.922	2.567	10/02	1.149	10/03	0.430	10/04	Continuing	Continuing 0.000 0.000	
		2.567	10/02						0.000 0.000	
				1.676	10/03	0.956	10/04		0.000	
				1.676	10/03	0.956	10/04	0		
				1.676	10/03	0.956	10/04	0 " '		
								Continuing	Continuing	
	0.556	0.695	04/02					3	0.000	
	0.556	0.695	04/02						0.000	
			01/03	0.808	10/03	0.568	10/04	Continuing	Continuing	
									0.000	
									0.000	
1 4	11.440	13.228		9.821		5.210		Continuing	Continuing	
									0.000	
									0.000	
									0.000	
									0.000	
									0.000	
									0.000	
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									0.000	
	0.000	0.000		0.000		0.000		0.000	0.000	
		0.000	0.000 0.000	0.000 0.000	0.000 0.000 0.000	0.000 0.000 0.000	0.000 0.000 0.000 0.000	0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	0.000

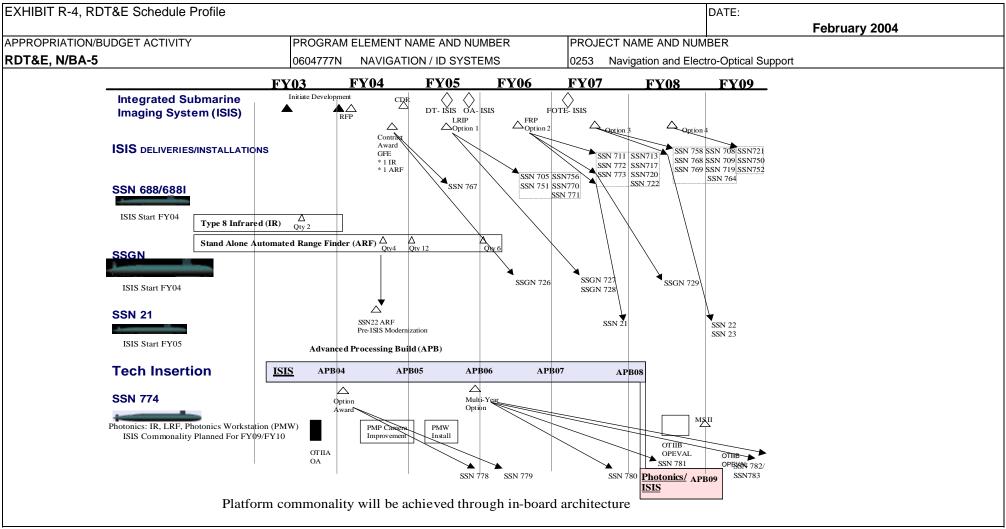
CLASSIFICATION:

									DATE:				
Exhibit R-3 Cost Analysis (p APPROPRIATION/BUDGET ACT	age 2)										February 200	4	
	VITY		PROGRAM E	LEMENT			PROJECT NU	IMBER AND N	NAME				
RDT&E, N / BA-5			0604777N	NAVIGATION /	ID SYSTEMS		0253 Navig	ation and Elec	ctro-Optical Supp	oort			
Cost Categories	Contract	Performing		Total		FY 03		FY 04		FY 05			
	Method	Activity &			FY 03	Award		Award		Award	Cost to	Total	Target Value
	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete		of Contract
Developmental Test & Evaluation												0.000	
Operational Test & Evaluation												0.000	
Live Fire Test & Evaluation												0.000	
Test Assets												0.000	
Tooling												0.000	
GFE												0.000	
Award Fees												0.000	
Subtotal T&E				0.000	0.000		0.000		0.000		0.000	0.000	
Contractor Engineering Support												0.000	
Program Management Support											Continuing	Continuing	
Management Support Services/ETS	Various	Various		3.650	0.680	11/02	1.484	10/03	0.869	10/04	Continuing	Continuing	
Travel				0.457	0.044		0.042		0.041			0.584	
Transportation												0.000	
												0.000	
Subtotal Management				4.107	0.724		1.526		0.910		Continuing	Continuing	
Remarks:													
Total Cost				45.547	13.952		11.347		6.120		Continuing	Continuing	
Remarks:													

CLASSIFICATION:



CLASSIFICATION:



R-1 SHOPPING LIST - Item No. 13131

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:	Johnson, 2004	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU	JMBER AND N	ebruary 2004 AME	
RDT&BA-5	0604777N	NAVIGATION /	/ ID SYSTEMS		0253 Navigation and Electro-Optical Support			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Rangefinder Advanced Development Model Delivery	2Q							
Common Submarine Imaging Development	1Q-4Q							
PMP OT-IIB / Operational Assessement	3Q							
Deliver and Install SSN776 PMP		1Q						
Rangefinder Low Rate Initial Production		3Q						
Deliver Rangefinder Engineering Development Model		4Q						
Complete Common Sub Imaging System Development		4Q						
Deliver and Install SSN777 PMP			1Q					
Common Submarine Imaging Production Start			2Q					
Deliver and Install SSN778 PMP				1Q				
Deliver and Install SSN779 PMP					1Q			
Deliver and Install SSN780 PMP						1Q		
VA Class 0T-IIIB					4Q	1Q		
VA Class OPEVAL						2Q-3Q		
Milestone III						4Q		

R-1 SHOPPING LIST - Item No.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
									Febru	ary 2004	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM EL	EMENT NUME	BER AND NAM	IE	PROJECT NU	MBER AND N	AME			
RDT&E, N / BA-5	0604777N NA	VIGATION/ID S	SYSTEMS			0921 NAVSTA	R GPS EQUIP	MENT			
	Prior										Total
COST (\$ in Millions)	Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Program
Project Cost	809.770	17.946	21.831	14.467	21.433	21.856	22.282	22.719		Continuing	Continuing
RDT&E Articles Qty											0

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission is to provide supported, affordable, integrated, and interoperable navigation solutions to the warfighters. RDT&E funds are used to perform all the non-recurring Global Positioning System (GPS) Surface Ship, Submarine and Aircraft Integration efforts. The Aircraft integration efforts are required for 102 different configurations of Navy, Marine Corps and Coast Guard aircraft in response to the CNO GPS Integration Guidance (GIG), the Public Law 103-160 and the Secretary of Defense As Soon As Possible direction of April 1996 (ASAP program). The GIG directs GPS design functional characteristics for the aircraft and Public Law 103-160 directs the schedule for completion of all installations by 30 September 2005.

The GPS is a space-based radio positioning and navigation system that provides users with worldwide, all-weather, three-dimensional position, velocity and precise time data based on a constellation of 24 satellites. PMW/PMA-156 is the central office responsible for funding all GPS aircraft integration RDT&E efforts performed by over 20 NAVAIR program offices, dozens of DoD/Navy field activities and laboratories, and dozens of contractors. The aircraft installation recurring efforts are funded separately by PMW/PMA-156 and the platform program offices with APN dollars. The primary tasks to be accomplished for each of the 102 aircraft configurations include: GPS integration design studies; acquisition of aircraft and lab RDT&E assets; timing and frequency, development of test aircraft hardware and/or software designs; development of Integrated Logistics Support (ILS) elements to support test (operator and maintenance training, technical manuals); and Formal Navy Test and Evaluation (Development and Operational Test). Other tasks include the development of: new hardware and software systems for over 3300 Naval Aircraft to meet GIG, GPS Flight In Controlled Airspace (FICA), CNS/ATM and JPALS requirements when existing systems are unsuitable; the Digital Data Set (DDS); the Control Display Navigation Unit (CDNU) and associated software for many different aircraft and modifications to the GPS Mission Planning Module for the Naval Mission Planning System (JMPS).

The Surface Ship and Submarine integration efforts include two vitally important navigation integration initiatives: NAVSSI and the AN/WRN-6 replacement. The first program is the Navigation Sensor System Interface (NAVSSI) development. The NAVSSI is the surface ship system with a requirement of integrating with over 54 systems/interfaces on 131 surface ship platforms. This operational requirement for the NAVSSI has two distinct functions. The first is the integration and distribution of real time navigation and time sources, primarily GPS, to combat systems, combat support systems, air alignment systems and support systems. The second is as the primary surface ship navigators' electronic workstation required to perform fully integrated Electronic Chart Display Information System for the Navy (ECDIS-N) navigation. NAVSSI is an evolutionary acquisition development. A low cost ECDIS-N system will also be developed to support non-NAVSSI ships. The second surface ship development program is the replacement of the AN/WRN-6, which is out of production and approaching obsolescence, with low cost GPS Versa Module Europa (VME) Receiver Card (GVRC) technology combined with fiber optic antenna capability and a new security chip. For NAVSSI ships, this integration will be done in conjunction with NAVSSI integrations. (For non-NAVSSI surface ships, PMW/PMA 156 is developing a low cost system to replace the AN/WRN-6.)

For submarine systems, PMW/PMA 156 is supporting ongoing NAVSEA initiatives for the replacement of the AN/WRN-6 systems with the GVRC card technology. The National Defense Authorization Act for Fiscal Year 1999 included GPS language directing DoD to start "The development of an enhanced Global Positioning System [as] an urgent national security priority."

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification	[DATE:	
			February 2004
APPROPRIATION/BUDGET ACTIVITY	PROJECT NUMBER AND NA	ME	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5	0921 NAVSTAR GPS EQUIPI	MENT	

The Naval Research Advisory Committee (NRAC) GPS Vulnerability Study Panel tasked by OPNAV N6 and ASN(RD&A), assessed the Navy's GPS Vulnerabilities and recommended specific actions to resolve serious issues to ensure the continued availability of GPS information in a high risk hostile jamming environment. As a result, OPNAV N633 (now N611) and N880 (now N78) drafted the Navy Enhanced GPS User Equipment ORD to address operational requirements. These were validated and the ORD was approved on June 7, 2000. With this beginning, OSD directed the first phase of the Navy's overall GPS upgrade program with RDT&E leading to initial procurements of GPS anti-jam (AJ) antennas beginning in 2001 for aircraft and 2002 for ships. RDT&E continues to support platform integration requirements, DT/OT, as well as the GPS JPO's development of a Digital Antenna Electronics (DAE), the Navy's development of a smaller AJ antenna and a conformal low-observable AJ antennas for aircraft with those requirements, and a new a technology AJ solution for submarines. Two similar but separate ACAT III programs (Air and Sea NAVWAR) have been established and have become the basis for the Navy's NAVWAR program.

The second phase (referred to as Air and Sea GPS Modernization) of the Navy's overall GPS User Equipment upgrade, will require RDT&E to support the replacement of existing legacy GPS receivers with enhanced capability new receivers. These new receivers will incorporate GPS Joint Program Office (JPO) directed and developed technology enhancements to support new signals in space, enhanced receiver security, and aircraft operations within controlled airspace. All of these efforts will be directed, tasked, and funded through PMW/PMA-156.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE:	
					February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMEN	T NUMBER AND NAME	PROJECT NUMBER AND N	IAME	
RDT&E, N / BA 5	0604777N	NAVIGATION/ID SYSTEMS	0921 NAVSTAR GPS EQUII	PMENT	

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	2.071	0.000	0.000	
RDT&E Articles Quantity	0	0	0	

(U) FY03 ACCOMPLISHMENTS:

(U) (\$2.071) Completed NAVSSI integration engineering for shipboard combat, weapons, navigation, command and control systems and NAVSSI Lite development.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	11.679	15.402	9.497	
RDT&E Articles Quantity				

(U) FY03 ACCOMPLISHMENTS:

(U) (\$11.679) Air NAVWAR: Began integration on the F/A-18C/D/E/F/G, AV-8B, H-60. Continued integration studies on the F/A-18 series. Began hardware integration on the AV-8B. Continued DT on the H-60 platform. Continued support to the GPS JPO for modernization Initiatives (ADAP, M-CRPA) and coordinated JPO initiatives with the Navy's F/A-18 program as the selected air platform for "lead the force" GPS Modernization development and integration.

(U) FY04 PLANS:

(U) (\$15.402) Air NAVWAR: Continue DT on H-60 series platforms. Continue DT testing on the AV-8B. Begin integration studies on H-53 series platforms. Begin integration studies on the AH/UH-1. Continue F/A-18E/F/G integration development and monitor continued conformal/low observable array technologies. Participate in the GPS JPO's Advanced digital Antenna Program (ADAP) source selection & hardware testing for potential application to Naval platforms. Begin integration efforts on additional aircraft T/M/S.

(U) FY05 PLANS:

(U) (\$9.497) Air NAVWAR: Continue DT/OT testing on AV-8B and H-60 series platforms. Begin integration and testing on the H-53 and H-1 series platforms. Begin technology downselect on the F/A-18 E/F/G. Continue monitoring/testing on conformal/LO arrays. Continue development/integration testing on the ADAP. Begin/continue integration efforts and DT on additional aircraft T/M/S.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE:	
					February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMEN	IT NUMBER AND NAME	PROJECT NUMBER AND N	IAME	
RDT&E, N / BA 5	0604777N	NAVIGATION/ID SYSTEMS	0921 NAVSTAR GPS EQUIP	PMENT	
	•	·	<u> </u>		<u> </u>

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	4.196	4.929	3.470	
RDT&E Articles Quantity				

(U) FY03 ACCOMPLISHMENTS:

(U) (\$4.196) Sea NAVWAR: Began RDT&E modeling/simulation and integration analysis for MHC and L-class ships. Initiated planning to conduct a friendly emitter analysis on selected US ships. Completed the OA on the MCM. Completed DT on the LCAC and MHC. Began integration on the FFG. Finalized the Fiber Optic Antenna Link and GAS-1 AE integration with NAVSSI. Began integration efforts on the DDG and other Phase 1B platforms. Initiated an analysis of WDM technology for application to the Sea NAVWAR environment. Continued to evaluate anti-jam technologies for application to the submarine environment.

(U) FY04 PLANS:

(U) (\$4.929) Sea NAVWAR: Continue initial integration efforts (modeling and simulation) on selected Phase 1 platforms. Begin DT efforts on selected Phase 1A (i.e. FFG) and Phase 1B (DDG) ship classes. Continue WDM technology evaluation. Conduct submarine AOA and technology downselect for Phase 2 efforts.

(U) FY05 PLANS:

(U) (\$3.470) Sea NAVWAR: Continue modeling/simulation, integration, DT/OT efforts on selected Phase 1A & 1B platforms. Continue submarine AJ development and integration efforts. Support Phase 2 M/S B decision efforts.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	1.500	1.500	
RDT&E Articles Quantity				

(U) FY04 PLANS:

(U) (\$1.500) Continue support to the GPS JPO for modernization Initiatives (i.e. Advanced digital Antenna Program (ADAP)). Coordinate JPO and F/A-18 program office efforts on F/A-18 "lead the force" GPS Modernization efforts.

(U) FY05 PLANS:

(U) (\$1.500) Continue support to the GPS JPO for modernization Initiatives (i.e. Advanced digital Antenna Program (ADAP)).. Coordinate JPO and F/A-18 program office efforts on F/A-18 "lead the force" GPS Modernization efforts.

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification (Exhibit R-2a, page 32 of 38)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					DATE:	
,						February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	MENT NUMBER AND NAME		PROJECT NUMBER AND	NAME	
RDT&E, N / BA 5	0604777N	NAVIGATION/ID SYSTEMS		0921 NAVSTAR GPS EQ	UIPMENT	
(U) C. PROGRAM CHANGE SUMMARY:						
(U) Funding:		FY 2003	FY 2004	FY 2005		
Previous President's Budget:		19.144	22.127	14.979		
Current BES/President's Budget:		17.946	21.831	14.467		
Total Adjustments		-1.198	-0.296	-0.512		
Summary of Adjustments						
FY 03 SBIR		-0.362				
FY2003 Update		-0.404				
Management Improvments			-0.058			
Miscellaneous Adjustments		-0.432				
Efficiencies/Revised Econ Assumptions			-0.188			
SPAWAR Service Center Cost Adj			-0.050	-0.034		
NWCF Rate Adjustments				-0.002		
Inflation Adjustment				-0.046		
N61 Headquarters Support				-0.430		
Subtotal		-1.198	-0.296	-0.512		

(U) Schedule:

Air Phase 1: Schedule now includes F/A-18 C/D which was previously a Phase 2B candidate platform. This will extend the Phase 1 integration & test schedule out through FY 05 for that platform.

(U) Technical:

Air Phase 1: Engineering and Technical analysis determined that the F/A-18 C/D is a good candidate for Phase 1 GAS-1 integration and this platform is now a priority for Air NAVWAR RDT&E integration and test.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							D.	DATE:
								February 2004
APPROPRIATION/BUDGET ACTIVITY		PROGRAM E	LEMENT NUM	BER AND NAM	1E	PROJECT NU	IMBER AND NAN	ME
RDT&E, N / BA 5		0604777N	NAVIO	GATION/ID SYS	STEMS	0921 NAVSTA	AR GPS EQUIPM	MENT
(U) D. OTHER PROGRAM FUNDING SUMMARY:								To Total
Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	<u>Complete</u> <u>Cost</u>
(U) OPN Line #2657	11.436	15.519	11.65	13.204	12.504	12.759	13.021	Continuing Continuing
(U) APN - Common Avionics	4.443	2.264	0.000	17.946	22.182	22.607	23.031	Continuing Continuing
(U) OMN - PE 0305164N	1.063	2.537	2.491	2.503	2.553	2.616	2.682	

(U) E. ACQUISITION STRATEGY: *

NAVWAR Participate in GPS Joint Program Office and Warner Robbins ALC FY 01-FY 07 procurements for the GAS-1 anti-jam antenna. Initiate Navy contracting options for smaller array anti-jam antennas and conformal/low observable arrays for selected aircraft. Initiate Navy contracting for the shipboard ground plane and submarine array. Participate with the GPS JPO in their development of a Advanced Digital Antenna Program (DPAP) LRU and identify potential Navy candidate platforms. Support the GPS JPO in their F/A-18 "lead the force" GPS Modernization efforts. Participate in GPS JPO procurements wherever practicable for GPS Modernization Enhancements. See attached Milestone chart.

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

^{**} Required for DON and OSD submit only.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5												
										February 200	4	
RDT&E, N / BA-5		PROGRAM E	LEMENT			PROJECT NU	JMBER AND N	IAME				
		0604777N	NAVIO	SATION/ID SY	STEMS	0921 NAVSTA	AR GPS EQUII	PMENT				
Cost Categories Cont	ntract Performing		Total		FY 03		FY 04		FY 05			
Meth			_	FY 03	Award	FY 04	Award	FY 05	Award	Cost to	Total	Target Value
& Ty	ype Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Product Development Vari	rious Product Ve	ndors	263.979	1.867	Various	3.032	Various	1.800	Various	Continuing	Continuing	i
Product Development SSC-SD WX	SSC-SD		64.678	0.610	10/02	0.650	10/03	0.371	10/04	Continuing	Continuing	i
Prod Dev (other in house) WX	Various Fie	ld Activities	440.748								440.748	,
Ship Integration											0.000	,
Ship Suitability											0.000	,
Systems Engineering Vario	ious Various Go	vt/Cont		2.110	Various	2.200	Various	1.500	Various	Continuing	Continuing	j
Training Development											0.000	,
Licenses											0.000	,
Tooling											0.000	,
GFE											0.000	,
Award Fees											0.000	,
Subtotal Product Development			769.405	4.587		5.882		3.671		Continuing	Continuing	·

Remarks:

Development Support	Various	Various	12.710							Continuing	Continuing	
Software Development	Various	SSC-SD/Platfrom Primes	3.250	1.650	10/02	1.000	10/03	0.700	10/04	Continuing	Continuing	
Integrated Logistics Support	Various	SSC-SD/NAWC/SIR/DCS		0.750	10/02	0.857	10/03	0.850	10/04	Continuing	Continuing	
Training Development	wx	SSC-SD/NAWC	0.450	0.500	10/02	0.500	10/03	0.275	10/04	Continuing	Continuing	
Technical Data	Various	Platform PMO's		0.500	10/02	0.500	10/03	0.300	10/04	Continuing	Continuing	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			16.410	3.400		2.857		2.125		Continuing	Continuing	

Remarks:

CLASSIFICATION:

										DATE:									
Exhibit R-3 Cost Analysis (page	e 2)												February 200	4					
APPROPRIATION/BUDGET ACTIVI	TY		PROGRAM E	LEMENT	Γ			PROJECT N	JMBER AND	NAME									
RDT&E, N / BA-5			0604777N		NAVIG	ATION/ID SY	STEMS	0921 NAVST		IPMENT									
Cost Categories	Contract	Performing		Total			FY 03		FY 04			FY 05							
	Method	Activity &		PY s		FY 03	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				
Test & Evaluation (NAWC PAX)	WX	NAWC PAX			10.969	0.700		2.060		_	1.700	10/04	Continuing	·					
Test & Evaluation (DCS)	CPAF	DCS CORP P.	AX		1.427	0.334		0.350	1		0.365	10/04	Continuing	Continuing					
Test & Evaluation (SSC-SD)	WX	SSC-SD			1.145	0.600	10/02	0.800	10/03		0.586	10/04	Continuing	Continuing					
Test & Evaluation Platform Testing	Various	VARIOUS CO	NTRACTORS		1.379	3.800	Various	3.500	Various		2.025	Various	Continuing	Continuing					
Tooling														0.000					
GFE														0.000					
Award Fees														0.000					
Subtotal T&E					14.920	5.434	ı.	6.710			4.676		Continuing	Continuing					
Contractor Engineering Support	Various	DCS, SAIC, AR	INC		1.500	1.409	10/02	1.876	10/03		1.452	10/04	Continuing	Continuing					
Government Engineering Support	WX	SSC, NAWC, W	VR .		0.700	1.120	10/02	2.230	10/03		0.899	10/04	Continuing	Continuing					
Program Management Support	CPAF	DCS, Price Sys	tems		7.180	1.996	10/02	2.276	10/03		1.644	10/04	Continuing	Continuing					
Travel														0.000					
Transportation														0.000					
														0.000					
Subtotal Management					9.380	4.525	5	6.382	2		3.995		Continuing	Continuing					
Remarks:																			
Total Cost				8	310.115	17.946	6	21.83			14.467		Continuing	Continuing					
Remarks:																			

CLASSIFICATION:

EXHIBIT R4, Schedule P	rofile																								DATI	E:						
																												Febr	uary 2	2004		
APPROPRIATION/BUDGET A									PRO	GRAM	ELEM	IENT N	IUMBE	ER ANI	D NAM	E					PRO	JECT	NUM	BER AN	D NAI	ИE						
RDT&E, N /	BA-5								06047	777N		N/	VIGA	TION/I	D SYS	TEMS					0921	NAVS	TAR	GPS EC	UIPN	1ENT						
Fiscal Year		200)2			20	03			20	004 G .	AS-1 F/0	D award		005			20	006			20	007			20	800			200	09	
r iscar rear	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	3 4	1 1	2	3	一
Air NAVWAR Acq M/S																													1			
Air Phase 1			A	I FRP	▲ Ph	ase 1 IC	c	▲ Ga:	-1 F/O	Aw	∆ Gas-1	Opt 2	Δ	Gas-1	Opt 3		Δ	Gas-1 C	Dot 4		Δ	Gas-1 C	pt 5									i
Air Phase 2A				I		Ī					Ī					I M/SCL				M/SCF	RP	Į		Δ	юс							i
Air Phase 2B															-		•	M/S B			i.				M/S C	l I RIP	ļ		M/SCF	l I RP		i
Phase 2A & 2B Phase 2 A			Phas	se 2A E	ev Con	tract	A		A 1	irst Ar	ticles R	&D						GAS-11	N Awd	+	Δ	Opt 2	t	+		Opt 3	†	+=	△ 0	t t	1	
Antenna Development									Phase 2	2A & 2E	Anten	na Dev	and tes	ting			0	Г		1												i
Phase 2B													Δ	Phase	2B Dev	Contra	ct	Δι	l First Aı	1 ticles		ΙΔ	Con	f Award	Δ	Opt 2	 	ļ 	Δ	Opt 3	l	ا ــــــــــــــــــــــــــــــــــــ
Integration and T&E M/S	C/KC	-130 DT			HH-	60H NR	E. DT			<u> </u>	MH 6	60R/S C	H-53 N	RE DT				1	E-2C	NRE, DT					F/	'A-18 C/	D NRE	DT E	-6B NRE	DT		Ь
Phase 1 D T & OT					Ι		Ĺ						Ц,	\Box												Τ	T	\top	T			
Phase 2A DT & OT						Π.		AV-8B	NRE, D			T	П		I			1 NRE, I	DT & O	T			4									i
Phase 2B DT & OT						L				F/A-18	B E/F NF	RE, DI	& OT			Į.	ОТ			Į.												Ш
Platform Installation				_ ا							Щ.																					l
Phase 1 (GAS-1)						C/KC	130 F/R/	P/J, I	HH-60 H	l							AV 0	BA&B k	it area							 /-8B Ins	tollotic					
Phase 2A (Small Antenna)																	AV-0	DAGD K	iii proc			T	T		I	V-OD IIIS	Tallatio	1	$\overline{}$	ПП	1	
Phase 2B (Conformal Ant)																				F/A-18	E/F/G	A&B ki	t proc						F/A-18 E	/FG		
System Deliveries**				45				85																114			<u> </u>	94	<u> </u>			83
Sea NAVWAR Acq M/S																																l
Sea Phase 1A				M/S C	LRIP		▲ F	RP	•	IOC			l .																			i
Sea Phase 1B													Δι	M/SC LF	RIP		Δ	FRP/IOC	3													i
Sea Phase 2														Δ	M/S B				Δ	M/S C	LRIP			∆ FRP/IO	С							L
Phase 1B GPA DEV Phase 2 Antenna Dev				Phase	1B Gro	ound Pla	ne Asse	embly (GPA) F	OAL De	ev																					
Development	Initial P	hase 2	Subma	rine st	udies by	PSU/A	RL				Techn	ology d	own se	lect																		i
EDM deliveries													Ante	enna De	v Testi	ng	∆ E	DM														l
Platform T&E M/S													1														1	1				
Phase 1A DT&OT					OA PI	nase 1 A	Operat	ional /	Assessn	nent	•																					i
Phase 1B DT & OT						•	Phase 1	IB TBD	Platfor	m NRE	, DT				ОТ																	i
Phase 2 DT & OT														TBS Sul	bmarine	Integra	tion NF	RE, DT 8	k OT			ОТ										i
Platform Installation																												1				
Phase 1A GAS-1							LCAC	, MCM,	МНС	FFG, C	G 47, L	SD 41,	LSD 49			1		_	_	1		_				_				1 1		
Phase 1B (GAS-1 w/FOAL)																		1	1			DDG, LC	c, cc	S, CV/N, LI	D, AG	F, FFG	, LHA,	LHD			1	
Phase 2 (Submarines)																										S	SNs 77	4, 688,2°	1, 726			
i ilase z (Subilialilies)				1	1	 	-	15	1	1	1	17	1	+	1	38		1	1	27	-	+	\vdash	41		Ŧ	Ŧ	24	+	1		24

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

^{**} Quantities are approximate year-end total number of NAVWAR system deliveries including those projected for new construction aircraft and ships. Quantities do not include RDT&E units or Spares.

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:	ebruary 20	04
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU	MBER AND NA	AME	
RDT&E, N / BA 5	0604777N	NAVIG	SATION/ID SYS	STEMS	0921 NAVSTA	R GPS EQUIP	MENT	
Air Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Phase 1 FRP	3Q							
Phase 1 1st production platform integration	4Q							
H-60 DT	4Q	1-4Q	1-4Q					
Phase 1 IOC		1Q						
AB-8B DT/OT		1-4Q	1-4Q	1Q				
Phase 2A 1st platform production integration						1Q		
Phase 2A LRIP				3Q				
Phase 2A FRP					3Q			
Phase 2A IOC						4Q		
Phase 2B Milestone B					1Q			
F/A-18 E/F DT/OT		2-4Q	1-4Q	1-4Q	1-4Q			
Phase 2B Milestone C LRIP						4Q		
Phase 2B 1st platform production integration							4Q	
Phase 2B FRP							4Q	
Phase 2B IOC								
Sea Profile								
Phase 1A LRIP	3Q							
Phase 1A Operational Assessment (OA)	4Q	1Q						
MCM 1st production installation		4Q						
Phase 1A FRP		3Q						
Phase 1A IOC			1Q					
Phase 1B LRIP				1Q				
Phase 1B Operational Test (OT)				4Q	1Q			
Phase 1B Platform 1st production installation					1Q			
Phase 1B FRP					1Q			
Phase 1B IOC					1Q			
Phase 2 M/S B				2Q	1			
Phase 2 LRIP					3Q			
Phase 2 Operational Test (OT)						3Q		
Phase 2 Platform 1st production installation						3Q		
Phase 2 FRP						3Q		
Phase 2 IOC						3Q		

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

Exhibit R-4, Schedule Profile (Exhibit R-4, page 38 of 38)