

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5					R-1 ITEM NOMENCLATURE 0604503N/Submarine Systems Equipment Development			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	66.764	123.765	80.815	66.797	72.761	76.204	75.460	76.179
F0775/Submarine Support Equipment	0.644	1.488	1.448	1.552	1.573	1.876	1.512	1.540
F0219/Submarine Sonar Improvements	38.861	71.961	65.071	30.384	27.552	43.615	51.165	51.827
F9070/MPP/SPB/A-RCI Model for Tactical Control Info	20.698	18.704						
X0742/Submarine Integrated Antenna Systems	2.695	17.355	9.096	27.096	39.011	28.151	20.191	20.177
X1411/Submarine Tactical Communications Systems	3.866	14.257	5.200	7.765	4.625	2.562	2.592	2.635
Defense Emergency Responses Funds (DERF) Funds: NOT APPLICABLE								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Support Equipment Program develops and improves submarine Electronic Warfare Support (ES) techniques and components, equipment, and systems that will increase submarine operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES to be effective in conducting the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare and Intelligence Collection, Maritime Protection, and Joint Strike.								
The Submarine Sonar Improvement Program and MPP/SPB/A-RCI Model for Tactical Control Information Management Program delivers block updates to Sonar Systems installed on SSN 688, 688I, 21, TRIDENT and SSGN Class Submarines to maintain clear acoustic, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization and contact following. Current developments are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement.								
The Submarine Integrated Antenna Systems project develops the antennas needed to communicate in networks such as Ultra High Frequency Satellite Communications, Extremely Low Frequency (ELF), Extremely High Frequency (EHF), Super High Frequency and Global Positioning System. Hardware developments include: (a) mast-mounted systems; (b) buoyant cable systems; (c) expendable buoy systems and (d) submarine antenna distribution systems.								
The Submarine Tactical Communications Systems project provides attack submarines with an exterior communications system which: (a) minimizes the time required at communications depth; (b) enhances operability, reducing errors and manpower requirements; and (c) provides flexibility for low impact growth and change throughout the life of the submarine. Design efforts will provide increased antenna signal distribution and interconnection subsystems to accommodate ELF, EHF, and Mini-Demand Assigned Multiple Access and a message storage and processing subsystem.								

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Exhibit R-2, RDTEN Budget Item Justification
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EXHIBIT R-2, RDT&E Budget Item Justification				DATE:	
				February 2003	
APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE		
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-5			0604503N/ Submarine Systems Equipment Development		
B. (U) Program Change Summary:					
Funding:	FY 2002	FY 2003	FY 2004	FY 2005	
FY2003 President's Budget	64.682	98.516			
FY2004 President's Budget	66.764	123.765	80.815	66.797	
Total Adjustments	2.082	25.249	80.815	66.797	
Summary of Adjustments					
FY02 Actuals	4.614				
Affordable Towed Array		1.000			
SBIR/STTR Transfer	-1.329				
Economic Assumptions	-0.508	-0.738			
Miscellaneous Adjustments	-0.584	-2.065			
SSN/SSBN Modernization (NPES)		6.300			
Submarine Common Electronic Equipment		1.700			
MPP/APB/A-RCI /Model		19.125			
FFRDC	-0.111	-0.073			
Subtotal	2.082	25.249	0.000	0.000	

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 2 of 58)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine System Equipment Development				PROJECT NUMBER AND NAME F0775/Submarine Support Equipment			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	0.644	1.488	1.448	1.552	1.,573	1.876	1.512	1.540
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops and improves techniques and components, equipment, and systems that will increase submarine operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for Submarine Electronic Warfare Support Measures (ES) systems to be effective in conducting the following mission areas: Joint Littoral Warfare; Joint Surveillance, Space and Electronic Warfare and Intelligence Collection; Maritime Protection; and Joint Strike. Specific efforts include: (1) AN/BLQ-10(V) ES System software problem evaluation and resolution, (2) Engineering and Manufacturing Development of advanced technology transitioned from the Advanced Submarine Support Equipment Program (ASSEP), project F0770 and (3) Development of AN/BLQ-10(V) Technology Insertion of SIGINT threat emitters/carry-on equipment open architecture. The AN/BLQ-10(V) ES System problem evaluation will provide correction of system problems identified during Operational Evaluation (OPEVAL), Factory Training, and Follow-on Test and Evaluation (FOT&E).</p>								

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine System Equipment Development	PROJECT NUMBER AND NAME F0775/Submarine Support Equipment																	
B. Accomplishments/Planned Program																			
<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;">0.248</td><td style="text-align: center;">0.145</td><td style="text-align: center;">0.172</td><td style="text-align: center;">0.095</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	0.248	0.145	0.172	0.095	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	0.248	0.145	0.172	0.095															
RDT&E Articles Quantity																			
ES Vulnerability Server (EVS): Developed under ASSEP F0770 - Correct deficiencies found during at sea testing and complete first article testing																			
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.396	0.365	0.428	0.095															
RDT&E Articles Quantity																			
Passive Surveillance Radar (PSR): Developed under ASSEP F0770 - Correct deficiencies found during at sea testing and complete first article testing																			
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Accomplishments/Effort/Subtotal Cost		0.978	0.660	0.803															
RDT&E Articles Quantity																			
Communications, Acquisition and Direction Finder (CADF): AN/BLQ-10 integration through FY04 - Correct deficiencies found during test and integration with AN/BLQ-10.																			

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B. Accomplishments/Planned Program (Cont.)																			
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RDT&E Articles Quantity																			
Low Probability of Intercept (LPI) Receiver: Developed under ASSEP F0770 - Correct deficiencies found during test and integration with AN/BLQ-10.																			
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Accomplishments/Effort/Subtotal Cost				0.323															
RDT&E Articles Quantity																			
Mast Signature Reductin (MSR): Developed under ASSEP F0770 - Introduce new RAS materials for antenna adapter and new technology mast.																			
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APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / BA-5			0604503N/Submarine System Equipment Development			F0775/Submarine Support Equipment					
D. OTHER PROGRAM FUNDING SUMMARY:											
Line Item No. & Name		FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN Line 256000/256005											
ML009 APB-EW		0.000	0.657	0.668	1.452	1.770	0.828	1.890	2.277	Continuing	9.542
ML010 Tech Refresh Increments		0.000	0.000	3.456	2.093	1.114	0.864	2.368	2.761	Continuing	12.656
ML015 AN/BLQ-10(V) SSN ES Backfit System		11.300	35.224	18.499	36.243	59.671	45.039	58.512	39.672	Continuing	304.160
ML016 AN/BLQ-10(V) SSN ES Systems		0.000	0.000	0.000	0.000	6.480	5.900	6.012	24.505	Continuing	42.897
ML017 Field Change Kits		0.000	0.737	3.666	2.756	7.055	0.125	6.184	13.380	Continuing	304.160
SCN LI 201300											
PE 0204287N		21.827	22.720	22.984	23.286	23.797	48.944			Continuing	0.000
Partial (AN/BLQ-10 ES Only)											
Related RDT&E:											
(U) PE 0603562N/Submarine Tactical Warfare System											
(U) PE 064558N/New SSN Combat Systems Development/Project F1950											
(U) PE 064558N/New SSN Combat Systems Development/Project F2430											
E. ACQUISITION STRATEGY:											
(U) Acquisition Strategy: LRIP approved November 99 and Full rate production approved October 2000. Current efforts in this project consist of Product Improvements (Tech Insertion) to the AN/BLQ-10(V) ES system.											
F. MAJOR PERFORMERS:											
Argon Engineering, Fairfax, VA - Communications acquisition and Direction Finding system engineering and development											
Lockheed-Martin, Syracuse, NY - AN/BLQ-10 system software and hardware enhancements											
NUWC, Newport, RI - Provides AN/BLQ-10 and CADF LITE ISEA support and provides EW/SIGINT end-to-end analysis capability											

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 7 of 58)

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604503N/Submarine System Equipment Development			PROJECT NUMBER AND NAME F0775/Submarine Support Equipment						
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
IEM/HPI Interface	SS/CPHF	SENSYS Tech Newington, V	2.700							0.000	2.700	2.700
AN/BLQ-10 ES/IEM BDE EDMS	C/FFP	Lockheed Syracuse, NY	7.778							0.000	7.778	7.778
AN/BLQ-10 ES Product Improvement	SS/FFP	Lockheed Syracuse, NY	1.666	0.417	01/03	0.415	12/03	0.414	12/04	CONT	CONT	CONT
Systems Engineering	WR	NUWC Newport, RI	5.419	0.195	10/02	0.200	12/03	0.199	10/04	CONT	6.304	N/A
Miscellaneous	VARIOUS	VARIOUS	12.839	0.876	N/A	0.833	12/03	0.939	N/A	0.000	15.487	N/A
GFE (AN/UYQ-70 Displays)	C/FFP	Lockheed Eagan, MN	0.700							0.000	0.700	0.700
IEM ADSU EMD (EDMs)	C/CPHF/C	E-Systems Goleta, CA	38.386							0.000	38.386	38.386
Award Fees	C/CPAF	E-Systems Goleta, CA	0.200							0.000	0.200	0.200
											0.000	
											0.000	
											0.000	
Subtotal Product Development			69.688	1.488		1.448		1.552		0.000	CONT	N/A
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Engineering Technical Services	C/CPHF	GRCI McLean, VA	2.700							0.000	2.700	2.700
Studies Analysis & Evaluations	MIPR	MITRE McLean, VA	1.000							0.000	1.000	1.000
GFE											0.000	
Subtotal Support			3.700	0.000		0.000		0.000		0.000	3.700	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604503N/Submarine System Equipment Development			F0775/Submarine Support Equipment						
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											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	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Management Support Services	C/CPAF	EG&G, Arlington, VA	0.292							0.000	0.292	0.292
Travel	TO's	Various	0.049							0.000	0.049	N/A
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.341	0.000		0.000		0.000		0.000	0.341	CONT
Remarks:												
Total Cost			73.735	1.488		1.448		1.552		CONT	CONT	CONT
Remarks:												

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R-2a, RDT&E Project Justification

DATE:

February 2003

APPROPRIATION/BUDGET ACTIVITY

PROGRAM ELEMENT NAME AND NUMBER

PROJECT NAME AND NUMBER

RDT&E, N/BA-5

0604503N/Submarine Sys Equip Development

F0775/Submarine Support Equipment Program

	SSEP SCHEDULE	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	
Threat Warning / Self Protection					Sensor Adapter (Testing)	Mast Integration	At Sea Testing			
	Mast Signature Reduction (MSR)									
	Low Probability of Intercept (LPI) Receiver			Interface Test	Land Based Testing	At Sea Test				
Situational Awareness Enhancements			At-Sea Tests	Production Design	First Article					
	ES Vulnerability Server (EVS)									
	CADF LITE / CLASSIC TROLL	TROLL Integration S/W Development		System Integration		APB-E Test Integration				
ISR Enhancements			At-Sea Tests	Production Design	First Article					
	Passive Surveillance Radar (PSR)									
	Modular Sensor System (Imaging / SIGINT modules)						System Integration Design		At Sea Testing	

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Exhibit R-4, RDT&E Project Justification

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Exhibit R-4a, Schedule Detail
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COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	38.861	71.961	65.071	30.384	27.552	43.615	51.165	51.827
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program delivers block updates to Sonar Systems installed on SSN 688, 688I, 21, SSGN and TRIDENT Class Submarines to maintain clear acoustical, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization and contact following. Current developments, detailed below, are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement. Acoustics Rapid COTS Insertion (A-RCI) is a multi-phased, evolutionary development effort geared toward addressing Acoustic Superiority issues through the rapid introduction of interim development products applicable to SSN 688, 688I Flight, SSN21, SSGN and SSBN 726 Class Submarines. A-RCI Phases I and II introduce towed array processing improvements; A-RCI Phase III introduces spherical array processing improvements. The AN/BSY-1 High Frequency Upgrade is a stand-alone program which will be introduced as A-RCI Phase IV for SSN 688I and Seawolf Class only and carries on to FY03. As part of CNO N772's plan to maintain acoustic superiority for In-Service Submarines a joint cooperative effort with NAVSEA (SEA 93, ASTO) to deliver annual Advanced Processing Builds (APBs). The capabilities in the APBs will be integrated as part of A-RCI certified systems. This effort, known as the N772 Business Plan funds the APB integration efforts with the Multi-Purpose Processor as well as the AN/BQQ-10 Sonar system beginning in FY02. This budget submit also reflects development of the Total Ship Monitoring System, Active Intercept and Ranging as well as Acoustic Intelligence (ACINT 21) capabilities to be introduced into the Fleet. Precision Bottom Mapping transition, integration and testing began in FY01.

Towed system's development efforts will focus on transitioning Fiber Optic Technology into Towed Array and Handling Systems and transitioning technology into hull mounted sensor systems. This program also includes initiation of existing TB-16MF development as a more capable replacement for the existing TB-16 Arrays.

AN/BSY-2 efforts are focused on ARCI-(V)5 development which implements ARCI Phases II-IV in the Seawolf Class submarines.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development	PROJECT NUMBER AND NAME F0219/Submarine Sonar Improvement																	
B. Accomplishments/Planned Program																			
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	25.639	21.412	20.445	23.537															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Continue Advanced Processing Build (APB) Sea Testing, Integration and Certification. This includes upgrades to Towed, Sphere, Hull and High Frequency Arrays. This effort is primarily the transition of APB software from development to A-RCI for integration and test, and formal certification. </div>																			
<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;">2.500</td> <td style="text-align: center;">2.500</td> <td style="text-align: center;">0.500</td> <td style="text-align: center;">0.500</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	2.500	2.500	0.500	0.500	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	2.500	2.500	0.500	0.500															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Continue Precision Bottom Mapping transition, integration and testing. This effort includes the initial integration and test, and formal certification of Precision Mapping in the A-RCI system. In the outyears this effort is for integration, test and certification of Precision Bottom Mapping APB upgrades. </div>																			
<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;">0.900</td> <td style="text-align: center;">0.900</td> <td style="text-align: center;">0.800</td> <td style="text-align: center;">0.800</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.900	0.900	0.800	0.800	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.900	0.900	0.800	0.800															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Continue development, integration, test and certification of Sonar Tactical Decision Aids in the A-RCI system. In the outyears this effort is for integration, test and certification of Sonar Tactical Decision Aid APB upgrades. </div>																			
24.837																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development	PROJECT NUMBER AND NAME F0219/Submarine Sonar Improvement																	
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			29.100																
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	FY 02	FY 03	FY 04	FY 05															
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		8.000																	
RDT&E Articles Quantity																			

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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		9.200																	
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		5.500																	
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			3.100																
RDT&E Articles Quantity																			

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B. Accomplishments/Planned Program (Cont.)				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		6.161		
RDT&E Articles Quantity				
Provides funds to support modernization of SSN/SSBN Non-Propulsion Electronics Systems.				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.662		
RDT&E Articles Quantity				
Provides funds for Submarine Common Electronic Equipment Research.				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

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Accomplishments/Effort/Subtotal Cost	4.002	5.713	6.350	5.404															
RDT&E Articles Quantity																			
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	FY 02	FY 03	FY 04	FY 05															
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RDT&E Articles Quantity																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-5	0604503N/Submarine Systems Equipment Development	F0219/Submarine Sonar Improvement		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2002	FY 2003	FY 2004	FY 2005
FY2003 President's Budget	35.638	64.601	40.778	42.833
FY2004 President's Budget	38.861	71.961	65.071	30.384
Total Adjustments	3.223	7.360	24.293	-12.449
Summary of Adjustments				
Management Reform	-0.438			
FFRDC	-0.037			
FY2002 SBIR (dtd 5-15-02)	-0.729			
Sec. 313,PL 107-206: Revised	-0.075			
FY02 BTR (July-02)	-0.020			
Economic Assumptions	-0.095	-0.413		
Issue 69270 FY02 Actuals (30-Sept)	4.617			
Business Process Reform		-0.294		
IT Cost Growth (Sec. 8109)		-0.135		
Affordable Towed Array (ATAC)		1.000		
FY03 FFRDC reductionb Sec. 8029		-0.017		
Inflation Savings		-0.781		
Miscellaneous adjustments			25.808	-11.795
SYSCOM CONTRACTOR SUPPORT			-0.006	-0.012
NWCF RATES - Naval Undersea Wa			0.024	0.027
NWCF RATES - Naval Surface War			-0.002	-0.001
SSN/SSBN Modernization		6.300		
Submarine Common Electronics		1.700		
Reduction in Support Contracto			-0.029	-0.013
Nonpay Purchase Infl			-1.151	
Nonpay Inflation			-0.351	
FY05/09 Inflation				-0.655
Subtotal	3.223	7.360	24.293	-12.449

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
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<p>C. PROGRAM CHANGE SUMMARY (cont'd)</p> <p>Schedule:</p> <p>The A-RCI TECHEVAL/OPEVAL schedule has been modified. A-RCI is currently in OPEVAL however not all test events have been completed due to the lack of test submarines.</p> <p>The TB-29A TECHEVAL/OPEVAL schedule has been modified and will be completed during the second quarter of FY03. An LRIP III decision has been added in the third quarter of FY 02 and Milestone III has been rescheduled to the third quarter of FY 03.</p> <p>Technical:</p> <p>Not applicable</p>		

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 19 of 58)

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development			PROJECT NUMBER AND NAME F0219/Submarine Sonar Improvements				

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>
OPN BLI 214700 SSN Acoustics	106.007	211.757	206.418	189.487	188.553	238.330	294.289	263.986	Continuing	Continuing
OPN BLI 214705 SSN Acoustics Installation	11.477	30.785	59.005	43.070	45.337	32.938	47.864	46.422	Continuing	Continuing

E. ACQUISITION STRATEGY:

A OMNIBUS contract was awarded for the TB-29A development effort to Lockheed Martin Integrated Systems , Bethesda, MD using full and open competition and this flexible contract vehicle will be used by submarine, surface ship, and surveillance towed system program offices. The contract is planned to take advantage of economies of scale in development and manufacturing and to encourage the use of commonality among all Navy towed systems. A Low-Rate Initial Production (LRIP) approval was granted for TB-29 (A) and contract was awarded in FY00. A second Low-Rate Initial Production (LRIP) approval was granted for TB-29 (A) and contract was awarded in the second quarter FY01. An Operational Evaluation (OPEVAL) on a SSN688 or SSN688I platform is planned in FY03 to support a Milestone III Release to Fleet (RTF) decision for TB-29(A). The next R&D phase for sustaining access with towed systems is the development of a highly reliable and more affordable fiber optic TB-29 variant towed array which uses fiber optic sensor technology for data collection and moves all outboard electronics from the array to inboard the submarine where they can be easily maintained. Cost savings in array production will be gained by using automated production techniques and significantly reducing or eliminating the "hand touch" labor common to today's towed array production methods because of the number of different electronics that must be wired together to achieve the acoustic capabilities necessary to meet today's and tomorrow's threats.

A-RCI utilizes an open architecture and Commercial Off-the-Shelf products in support of new and upgraded sonar systems. A sole source cost plus award fee contract was awarded to Lockheed Martin Federal Systems and Digital System Resources. Program Review with Milestone Decision Authority was conducted in December 1999 granting approval for the FY00 production option.

A Sole Source Cost Plus Award Fee contract with multiple option years ending in FY 2002 was awarded to Lockheed Martin, Syracuse in 1996 for AN/BSY-2 support. A one year contract extension until December 2003 was recently negotiated.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development	PROJECT NUMBER AND NAME F0219/Submarine Sonar Improvements
<p>F. Major Performers</p> <p>Lockheed Martin Corporation, Naval Electronics and Surveillance Systems-Undersea Systems; Manassas, Virginia - Provides primary hardware development, software integration and systems engineering support for Advanced Processor Builds for SSN 688, 688 I, 21 and Virginia Class submarine sonar systems. Contract awards projected for October each fiscal year.</p> <p>Digital System Resources, Inc; Fairfax, Virginia - Provides primary software development for SSN688, 688I, 21 and Virginia Class submarine sonar systems. Contract awards projected for October each fiscal year.</p> <p>Naval Undersea Warfare Center, Newport, Rhode Island - Provides systems engineering support for SSN688, 688I, 21 and Virginia Class submarine sonar systems. Work Requests to be issued October each fiscal year.</p> <p>Chesapeake Science Corporation, Millersville, Maryland: Provides primary hardware development, software integration and systems engineering support for the Affordable Towed Array Technology Initiatives. Contract awards projected for October each fiscal year.</p>		

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604503N/Submarine Systems Equipment Development			F0219/Submarine Sonar Improvement						
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	Various	Lockheed Martin (Omnibus)	14.187								14.187	
Primary Hardware Development	Various	Chesapeake Sciences	7.480	4.111	10/02	9.375	10/03	3.856	10/04		24.822	
Primary Hardware Development	SS/CPAF	LMC, Manassas, VA	105.311	23.520	11/02	13.708	10/03	5.070	10/04		147.609	
Ancillary Hardware Development	SS/CP	ARL University of Texas	1.127	1.611	12/02	0.543	10/03	0.543	10/04		3.824	
Systems Engineering	WR	NUWC, Newport R.I.	83.037	12.233	11/02	5.781	10/03	5.723	10/04		106.774	
Systems Engineering	SS/CPAF	LMC, Syracuse N.Y.	5.763								5.763	
Systems Engineering	Various	Various	12.035	0.185	11/02						12.220	
Software Development	SS/CP	Progeny Systems		4.981	11/02						4.981	
Systems Engineering	WR	NSWC, Carderock MD	1.534	1.612	10/02	1.630	10/03	0.641	10/04		5.417	
Systems Engineering	SS/CP	John Hopkins APL	1.201	1.850	12/02	1.304	10/03	2.174	10/04		5.417	
Hardware/Software Development	Various	SBIR's	0.328	0.975	12/02						1.303	
Award Fees	SS/CPAF	LMC, Syracuse N.Y.	0.495								0.495	
Miscellaneous	Various	Various	9.402								9.402	
Hardware/Software Development	TBD	TBD		6.161	02/03						6.161	
Systems Engineering	SS/CP	LMC, Eagan,, Minn.		1.662	02/03						1.662	
Systems Engineering	WR	NSWC, Crane, IN		0.076	11/02						0.076	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			241.900	58.977		32.341		18.007		0.000	351.225	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 22 of 58)

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February 2003

R-1 SHOPPING LIST - Item No. 112

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604503N/Submarine Systems Equipment Development			PROJECT NUMBER AND NAME F0219/Submarine Sonar Improvement						
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											0.000	
Operational Test & Evaluation	WR	OPTEVFOR	0.109	0.942	12/02	0.796	10/03	0.815	10/04		2.662	
Developmental/Operational T&E	Various	Various	6.118	0.100	12/02						6.218	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			6.227	1.042		0.796		0.815		0.000	8.880	
Remarks:												
Contractor Engineering Support											0.000	
Management Support Services	Various	Various	3.514	0.641	10/02	0.719	10/03	0.719	10/04		5.593	
Program Management Support	SS/CP	Mitre	0.273	0.250	12/02	0.272	10/03	0.272	10/04		1.067	
Travel	PD	NAVSEA	0.701	0.175	10/02	0.082	10/03	0.082	10/04		1.040	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			4.488	1.066		1.073		1.073		0.000	7.700	
Remarks:												
Total Cost			331.380	71.961		65.071		30.384		0.000	498.796	
Remarks:												

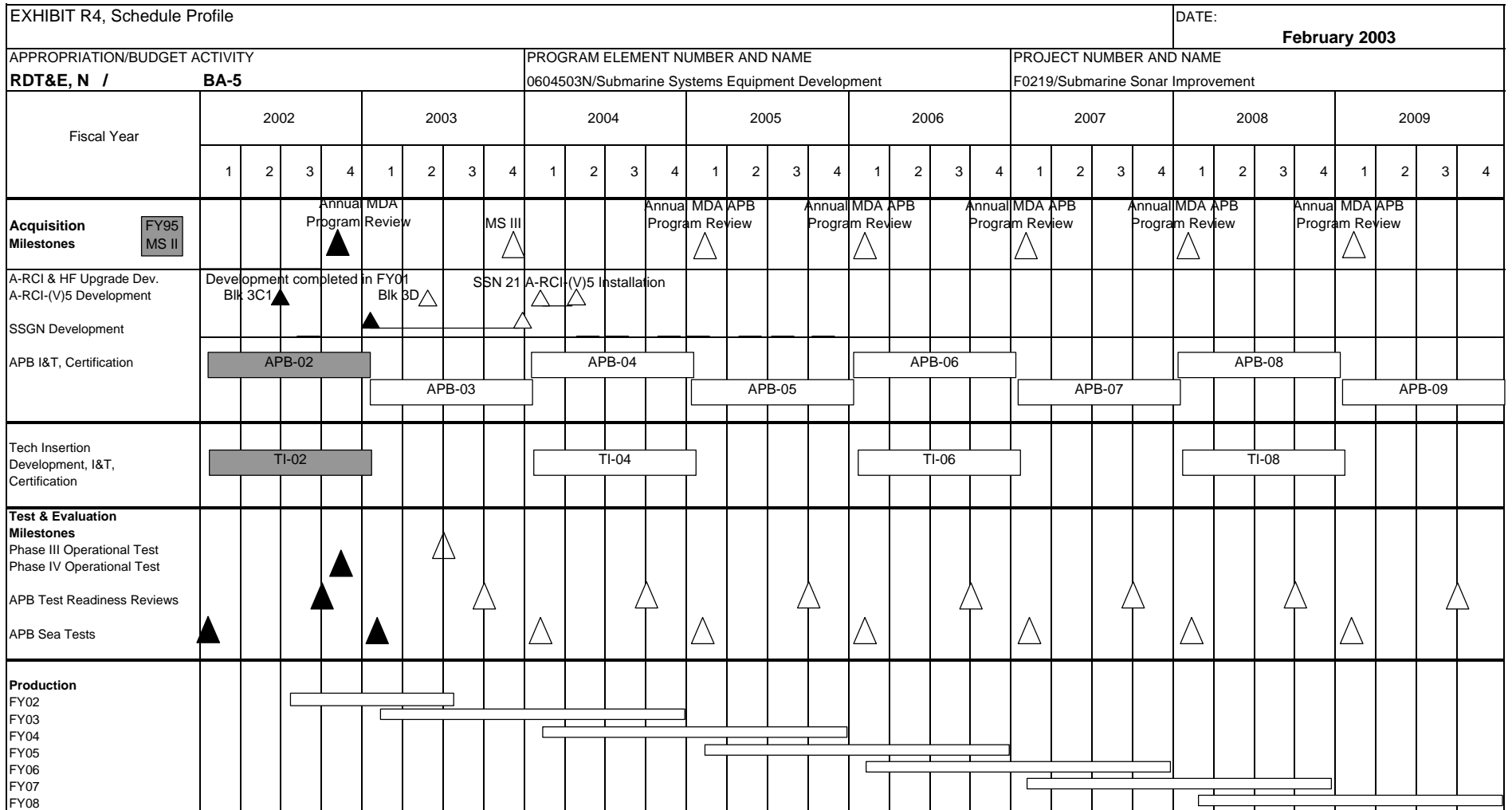
R-1 SHOPPING LIST - Item No. 112

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 24 of 58)

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R-1 SHOPPING LIST - Item No. 112

(Exhibit R-2, page 10 of 47)

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

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 25 of 58)

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 26 of 58)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: February 2003								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-5										0604503N: SSN-688 and Trident Modernization										F0219: Submarine Sonar Improvement												
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	1	2	3	4
Acquisition Milestones																																
TB-29A Development	Eng. & Manufacturing Development																															
			▲					△																								
			LRIP III					MS III																								
Test & Evaluation Milestones																																
Development Test			▲																													
Operational Test								△																								
Procurementa																																
LRIP I Completed																																
LRIP II Completed																																
LRIP III				▲	▲																											
Production Contract												△				△						△					△					
Deliveries	▲			▲	△			△				△		△		△						△					△					
	LRIP I Array				LRIP II Array				LRIP III				FY03 Array																			

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

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 27 of 58)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&BA-5		PROGRAM ELEMENT 0604503N: SSN688 and Trident Modernization				PROJECT NUMBER AND NAME F0219: Submarine Sonar Improvement		
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development								
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)								
Developmental Testing (DT-IIA)								
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)		3Q						
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I) Completed								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery	ends 4Q							
Technical Evaluation (TECHEVAL)	2Q							
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)		3Q						
Low-Rate Initail Production II Delivery		ends 4Q						
IOC								
Full Rate Production (FRP) Decision		3Q						
Full Rate Production Start		4Q						

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 28 of 58)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development			PROJECT NUMBER AND NAME F9070/MPP/SPB/A-RCI Model for Tactical Control Info MGMT			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	20.698	18.704	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program delivers block updates to Sonar Systems installed on SSN 688, 688I, 21, SSGN and TRIDENT Class Submarines to maintain clear acoustical, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization and contact following. Current developments, detailed below, are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement. Acoustics Rapid COTS Insertion (A-RCI) is a multi-phased, evolutionary development effort geared toward addressing Acoustic Superiority issues through the rapid introduction of interim development products applicable to SSN 688, 688I Flight, SSN21, SSGN and SSBN 726 Class Submarines. A-RCI Phases I and II introduce towed array processing improvements; A-RCI Phase III introduces spherical array processing improvements. The AN/BSY-1 High Frequency Upgrade is a stand-alone program which will be introduced as A-RCI Phase IV for SSN 688I and Seawolf Class only and carries on to FY03. As part of CNO N772's plan to maintain acoustic superiority for In-Service Submarines a joint cooperative effort with NAVSEA (SEA 93, ASTO) to deliver annual Advanced Processing Builds (APBs). The capabilities in the APBs will be integrated as part of A-RCI certified systems. This effort, known as the N772 Business Plan funds the APB integration efforts with the Multi-Purpose Processor as well as the AN/BQQ-10 Sonar system beginning in FY02. AN/BSY-2 efforts are focused on ARCI-(V)5 development which implements ARCI Phases II-IV in the Seawolf Class submarines.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development	PROJECT NUMBER AND NAME F9070/MPP/SPB/A-RCI Model for Tactical Control Info MGMT		
B. Accomplishments/Planned Program (Cont.)				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	20.698	18.704		
RDT&E Articles Quantity				
Continued research, development, training and deployment of Multipurpose Processors (MPP's). The MPP development effort completed in FY02. Extends APB/MPP technology insertion to enable submarines to achieve Navy network-centric warfare objectives and to accelerate development and extend common processing efforts..				
	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				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development	PROJECT NUMBER AND NAME F9070/MPP/SPB/A-RCI Model for tactical Control Info Mgmt		

C. PROGRAM CHANGE SUMMARY:

	FY 2002	FY 2003	FY 2004	FY 2005
Funding:				
FY2003 President's Budget	21.310	0.000	0.000	0.000
FY2004 President's Budget:	20.698	18.704	0.000	0.000
Total Adjustments	-0.612	18.704	0.000	0.000
Summary of Adjustments				
FY2002 SBIR (dtd 5-15-02)	-0.509			
Sec. 313 PL 107-206; Revised	-0.045			
Business Process reform		-0.076		
Economic Assumptions (Sec 813	-0.058	-0.107		
IT Cost Growth (Sec.8109)		-0.035		
MPP/APB/A-RCI Model for Tactic		19.125		
Inflation Savings		-0.203		
Subtotal	-0.612	18.704	0.000	0.000

Schedule:

The A-RCI TECHEVAL/OPEVAL schedule has been modified. A-RCI is currently in OPEVAL however not all test events have been completed due to the lack of test submarines.

Technical:

Not applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604503N/Submarine Systems Equipment Development			PROJECT NUMBER AND NAME F0219/Submarine Sonar Improvements					

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>
OPN BLI 214700 SSN Acoustics	106.007	211.757	206.418	189.487	188.553	238.330	294.289	263.986	Continuing	Continuing
OPN BLI 214705 SSN Acoustics Installation	11.477	30.785	59.005	43.070	45.337	32.938	47.864	46.422	Continuing	Continuing

E. ACQUISITION STRATEGY:

A-RCI utilizes an open architecture and Commercial Off-the-Shelf products in support of new and upgraded sonar systems. A sole source cost plus award fee contract was awarded to Digital System Resources. Program Review with Milestone Decision Authority was conducted in December 1999 granting approval for the FY00 production option.

F. Major Performers:

Digital System Resources, Inc; Fairfax, Virginia - Provides primary software development for SSN688, 688I, 21 and Virginia Class submarine sonar systems. Contract awards projected for October each fiscal year.

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604503N/Submarine Systems Equipment Development			F0219/Submarine Sonar Improvement						
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											0.000	
Primary Hardware Development											0.000	
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Systems Engineering											0.000	
Systems Engineering											0.000	
Software Development											0.000	
Systems Engineering											0.000	
Systems Engineering											0.000	
Hardware/Software Development											0.000	
Award Fees											0.000	
Miscellaneous											0.000	
Hardware/Software Development											0.000	
Systems Engineering											0.000	
Systems Engineering											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 34 of 58)

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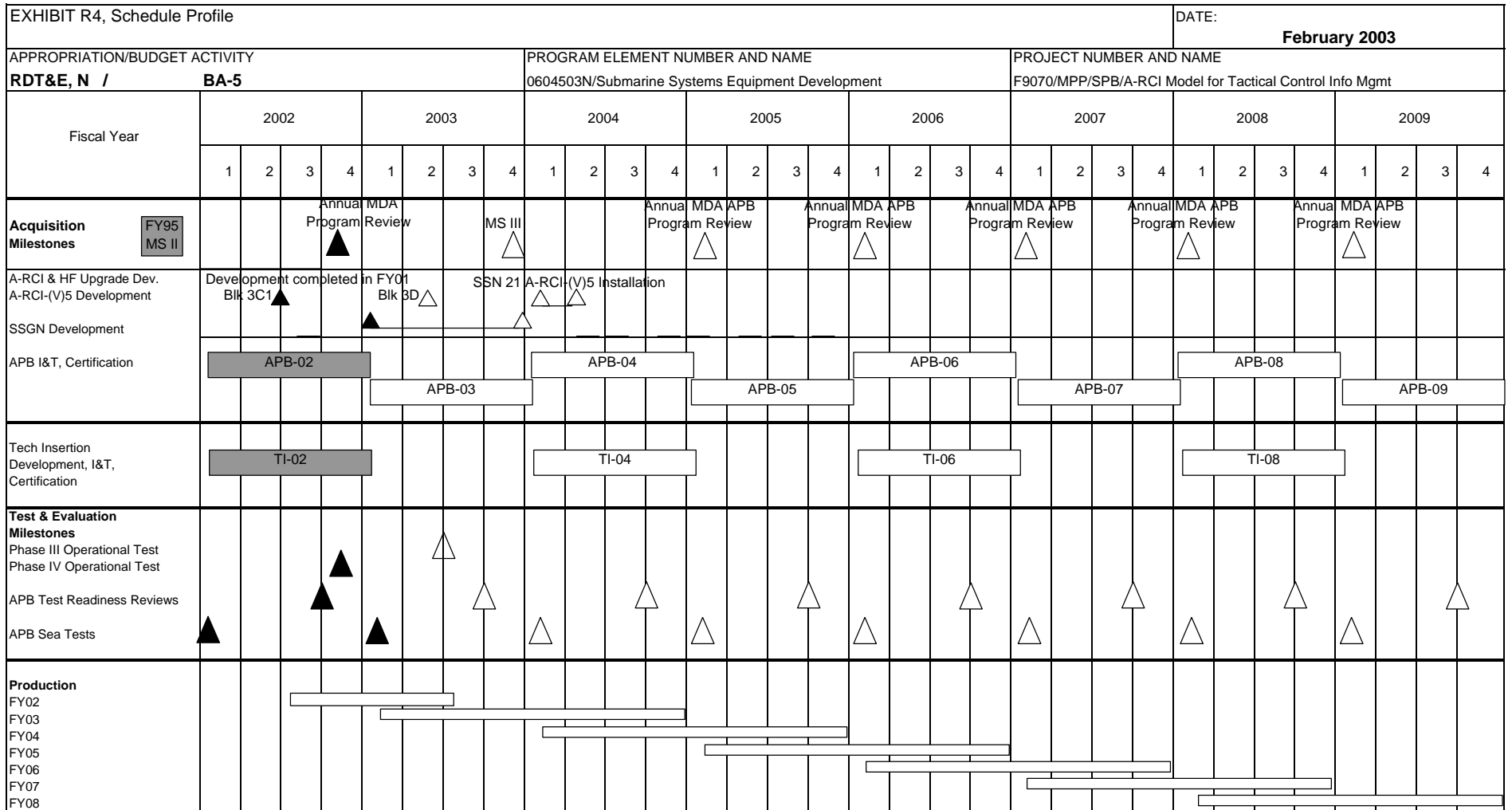
Exhibit R-3 Cost Analysis (page 2)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604503N/Submarine Systems Equipment Development			F9070/MPP/SPB/A-RCI Model for Tactical Control Info Mgmt						
Cost Categories	Contract 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											0.000	
Operational Test & Evaluation											0.000	
Developmental/Operational T&E											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	
Remarks:												
Contractor Engineering Support											0.000	
Management Support Services											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			20.698	17.804		0.000				0.000	38.502	
Remarks:												

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R-1 SHOPPING LIST - Item No. 112

(Exhibit R-2, page 10 of 47)

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

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 36 of 58)

UNCLASSIFIED

CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 112

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 37 of 58)

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 PE: 0604503N TITLE: SSN 688 & TRIDENT MODERNIZATION				PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System					
COST (\$ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	27.209	2.695	17.355	9.096	27.096	39.011	28.151	20.191	20.177	Continuing	Continuing
RDT&E Articles Qty											0

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
The Submarine Integrated Antenna System (SIAS) projects (X0742) provide: for the development and testing of submarine antennas designed to meet emerging submarine communications requirements of: (a) Improved frequency coverage and data rate capabilities of submarine antennas and their interface to the External Communications System (ECS), (b) Improved submarine antenna performance and data rate while the submarine is operating at speed and depth, (c) Antenna compatibility with new waveforms and receiver equipment, (d) Improved stealth capability of existing and future antennas and (e) Improved antenna design to reduce Total Ownership Cost. This project funds research and development for submarine antennas including (1) P3I efforts to existing antennas including OE-538/BRC Multi-Function Antenna improved UHF (iUHF) gain, RFDACS efforts and the OE-562 Submarine High Data Rate (SubHDR) development of K-band capability and system design changes for integration on OHIO class submarines, (2) Development of new antenna systems including Advanced High Data Rate Antenna (AdvHDR) and (3) Communication at Speed and Depth design efforts. These efforts will provide SSN, SSBN and SSGN platforms with an improved communications capability while operating at speed and depth thus enhancing operational flexibility and maintaining stealth in Littoral mission applications.

U) JUSTIFICATION FOR BUDGET ACTIVITY:
This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 38 of 58)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION	PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System																	
(U) 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>OE-538/RFDACS</td> <td style="text-align: center;">0.362</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	OE-538/RFDACS	0.362	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
OE-538/RFDACS	0.362	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> FY02 ACCOMPLISHMENTS: Completed development and testing of OE-538/RFDACS for OHIO class integration (\$.362). </div>																			
<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>Advanced HDR/SubHDR P-3I</td> <td style="text-align: center;">0.793</td> <td style="text-align: center;">14.706</td> <td style="text-align: center;">5.247</td> <td style="text-align: center;">12.108</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	Advanced HDR/SubHDR P-3I	0.793	14.706	5.247	12.108	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Advanced HDR/SubHDR P-3I	0.793	14.706	5.247	12.108															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> FY02 ACCOMPLISHMENTS: Performed trade off analysis to investigate application of new capabilities such as Ku/Ka-band coverage upgrade to SubHDR P3I or follow-on AdvHDR system. Initiated program definition and performance specifications to develop system requirements to meet broadband frequency coverage for communications multi-functionality and higher data rates over existing antennas at periscope depth while maintaining SSN, SSGN, and SSBN stealth objectives (\$.793). FY03: Develop modifications to submarine EHF Follow-On-Terminal (FOT) to accommodate SHF capability and meet the high priority fleet requirement to provide a secondary global IP connectivity (\$12.000). Develop digital navigation interface for SubHDR system to support SSGN (\$2.706). FY04: Complete FOT development to provide secondary global IP connectivity (\$3.900). Complete the digital navigation interface development for the SubHDR system (\$1.347). FY05: Perform Ku-Band system definition. Begin Ku-Band ECP development for both SubHDR Mast and Terminal (\$12.108). </div>																			
<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>SubHDR for OHIO</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	SubHDR for OHIO	0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
SubHDR for OHIO	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 39 of 58)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION	PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System																	
(U) B. Accomplishments/Planned Program																			
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	FY 02	FY 03	FY 04	FY 05															
On-Hull ELF	0.000	0.000	0.000	1.402															
RDT&E Articles Quantity																			
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	FY 02	FY 03	FY 04	FY 05															
Comms at Speed and Depth	0.000	0.000	0.190	8.338															
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION	PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System																	
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	FY 02	FY 03	FY 04	FY 05															
Antenna Transition Engineering	1.540	2.649	3.659	5.248															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 150px;"><p>FY02 ACCOMPLISHMENTS: Provided continued program definition, system specifications, and risk reduction to the next generation antenna systems, AdvHDR, and Advanced Bouyant Cable (AdvBCA). Continued tracking Satellite Communications (SATCOM) (WGF/Advanced Wideband System (AWS)/Advanced Narrowband Plan (ANS)/Advanced Extremely High Frequency (AdvEHF) and Line-of-Sight (LOS) UAV)/Unmanned Underwater Vehicle (UUV)/Unmanned Ground Sensor (UGS) connectivity operational capability requirements for translation into system performance specifications for acquisition. Continued technology performance and maturity assessment for new system baselines and rapid insertion potential to upgrade current antenna systems for support of emerging SATCOM circuits to meet evolving fleet requirements (\$1.540). FY03: Provide continued program definition, system specifications, and risk reduction to the next generation antenna systems for planned FY03 EMD program starts of AdvHDR and AdvBCA. Continue technology performance and maturity assessment for rapid insertion potential to upgrade current antenna systems for support of emerging SATCOM circuits to meet evolving fleet requirements (\$2.649). FY04: Continue to provide emerging requirements and Satellite Communications Database/Link analysis for other development programs including (i.e. MUOS/ANS, PCS/MCSS Commercial, WGS/AWS, Advanced EHF, and Wideband Commercial) (\$1.022). Continue P3I investigations and development efforts for legacy antenna systems (\$.950). Continue concept engineering efforts, new technology evaluations and assessments in support of current and future submarine antenna applications (\$1.687). FY05: Continue to provide emerging requirements and Satellite communications Database/Link analysis for other development programs (i.e. MUOS/ANS, PCS/MCSS Commercial, WGS/AWS, Advanced EHF, and Wideband Commercial (\$1.071). Continue P3I investigations and development efforts for legacy antenna systems (\$1.726). Continue concept engineering, new technology evaluations and assessments in support of current and future submarine antenna applications (\$2.451).</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></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></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05										
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION	PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System		

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2002	FY 2003	FY 2004	FY 2005
FY2003 President's Budget:	2.885	17.757		
FY2004 President's Budget	2.695	17.355	9.096	27.096
Total Adjustments	-0.190	-0.402	9.096	27.096
Summary of Adjustments				
SBIR/STTR Transfer	-0.037	0.000		
Economic Assumptions	-0.095	-0.100		
Inflation adjustment	0.000	-0.188		
Misc Navy Adjustments	-0.058	-0.114		
Subtotal	-0.190	-0.402	0.000	0.000

(U) Schedule:

1) OE-538/BRC: RFDAC ACU Variant will begin installations with the OE-538 multi-function mast in FY 03.

(U) Technical:

Not Applicable

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5			PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION				PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System			

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
3130000 Submarine Communications	87.177	120.291	104.935	161.954	149.624	138.116	169.545	168.880	Continue	Continue

Related RDT&E:
PE 0602232N Space and Electronic Warfare (SEW) Technology
PE 0303109N Satellite Communications - Provides for the EHF transmitter and receiver that utilized the antenna developed under this program.

(U) E. ACQUISITION STRATEGY: *

Program Milestones: FY 2005 2Q Comms at Speed and Depth MS-A; FY 2005 1Q On-Hull ELF MS-A
T&E Milestones: FY 2002 4Q OE-538 FOT&E; FY 2003 SubHDR 4Q FOT&E
Contract Milestones: FY 2005 Ku Band Upgrade Contract Award, 3Q

(U) F. MAJOR PERFORMERS: **

Not Applicable.

* Not required for Budget Activities 1,2,3, and 6
** Required for DON and OSD submit only.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604503N SSN 688 & TRIDENT MODERNIZATION			X0742 Submarine Integrated Antenna System						
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											0.000	
Digital Interface Development (HDR)	CPAF	Raytheon Marlboro, MA		2.452	02/03	0.697	01/04					
Hardware Development (HDR)	WX	NUWC Newport, RI	7.674	0.000	Various	0.000	Various	0.000	Various	Complete	Complete	7.674
Hardware Development (HDR SHF)	CPFF	Raytheon Marlboro, MA		12.000	Various	3.900	Various				15.900	
Hardware Development (Ka)	CPFF	Raytheon Marlboro, MA						10.299	Various	Continuing	Continuing	Continuing
Systems Dev Engineering (On-Hull)	TBD	TBD						1.380	Various	Continuing	Continuing	Continuing
Systems Dev Engineering (Commx)	TBD	TBD						2.843	Various	Continuing	Continuing	Continuing
Systems Engineering (HDR)	WX	NUWC Newport, RI	4.962	0.000	Various	0.000	Various	0.000	Various	Complete	Complete	4.962
Systems Engineering (Trans Eng)	WX	NUWC Newport, RI		1.514	Various	3.303	Various	5.171	Various	Continuing	Continuing	Continuing
Systems Dev Engineering (On-Hull)	WX	NUWC Newport, RI				0.000	Various	0.441	Various	Continuing	Continuing	Continuing
Systems Dev Engineering (Commx)	CPFFWX	Industry				0.190	Various	5.505	Various	Continuing	Continuing	Continuing
											0.000	
Subtotal Product Development			12.636	15.966		8.090		25.639		Continuing	Continuing	Continuing
Remarks:												
Development Support											0.000	
Software Development	WX	NUWC Newport, RI		0.339	Various	0.356	Various	0.357	Various	Continuing	Continuing	Continuing
Integrated Logistics Support	Various	Various	0.255	0.200	Various	0.200	Various	0.200	Various	Continuing	Continuing	Continuing
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.255	0.539		0.556		0.557		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 44 of 58)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-5			0604503N SSN 688 & TRIDENT MODERNIZATION				X0742 Submarine Integrated Antenna System					
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											0.000	
Operational Test & Evaluation											0.000	
Developmental/Operational T&E	Various	Various	1.167								1.167	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			1.167	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	Various	Various	0.847	0.850	Various	0.450	Various	0.900	Various	Continuing	Continuing	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.847	0.850		0.450		0.900		Continuing	Continuing	
Remarks:												
Total Cost			14.905	17.355		9.096		27.096		#VALUE!	#VALUE!	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 45 of 58)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:				February 2003				
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												
RDT&E, N / BA-5								PE: 0604503N TITLE: SSN 688 & TRIDENT MODERNIZATION												X0742 Submarine Integrated Antenna System												
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 (SubHDR) Milestones																																
Prototype Phase																																
System Development																																
EDM Delivery																																
Software Delivery																																
Test & Evaluation Milestones																																
Development Test																																
Technical Evaluation																																
Opoerational Evaluation																																
Production Milestones																																
Full Rate Production Start-up																																
Low-Rate Initial Production (LRIP) Start-up																																
Low-Rate Initial Production (LRIP) Delivery																																

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

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 46 of 58)

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[illegible]

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 47 of 58)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:				February 2003				
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA5										PE: 0604305N TITLE: SSN 688 & TRIDENT MODERNIZATION										X0742 Submarine Integrated Antenna System												
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 (Comms) Milestones														MS A/B										MS C								
AoA and ORD Development																																
System Development																																
EDM Delivery																																
Software 1XXSW Delivery 2XXSW Delivery																																
Test & Evaluation Milestones																																
Development Test																																
Operational Test																																
Production Milestones																																
LRIP I FY 08																																
LRIP II FY 09																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 112

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

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 48 of 58)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT PE: 0604305N TITLE: SSN 688 & TRIDENT MODERNIZATION				PROJECT NUMBER AND NAME X0742 Submarine Integrated Antenna System			
Schedule Profile (Comms)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Approval of Validated ORD				1Q				
Analysis of Alternatives			3Q-4Q	1Q-2Q				
Milestone A & B Decision (MS A/B)				2Q				
System Design Review (SDR)				2Q				
Software Specification Review (SSR)				4Q				
Preliminary Design Review (PDR)					1Q			
System Development					1Q-3Q			
Critical Design Review (CDR)					3Q			
Test Readiness Review (TRR)						1Q		
Developmental Testing (DT-IIA)						1Q-3Q		
Eng Dev Model (EDM) - Lab 1 Delivery						3Q		
Software Delivery (1XXSW)					1Q-4Q	1Q-3Q		
Preproduction Readiness Review (PRR)							1Q	
EDM for LRIP - Delivery						4Q		
Milestone C (MS C)							1Q	
Developmental Testing (DT-IIB)						4Q		
Start Low-Rate Initial Production I (LRIP I)							2Q	
Software Delivery (2XXSW)						3Q-4Q		
Start Low-Rate Initial Production II								2Q
Operational Testing (OT-IIA)								1Q-2Q
Developmental Testing (DT-IIC)							2Q-4Q	1Q
Functional Configuration Audit (FCA)								1Q
Low-Rate Initial Production I Delivery								1Q
Start Low-Rate Initial Production II (LRIP II)								2Q

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 49 of 58)

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE: 0604503N TITLE: SSN 688 & TRIDENT MODERNIZATION					PROJECT NUMBER AND NAME X1411 Submarine Tactical Communications System					
COST (\$ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	36.496	3.866	14.257	5.200	7.765	4.625	2.562	2.592	2.635	Continuing	Continuing
RDT&E Articles Qty											0

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

The Submarine Tactical Communications System project (X1411) provides submarines with communications systems designed to: (a) enhance data throughput through automation and integrated network management; (b) copy tactical data networks, (c) provide submarines IP connectivity; (d) be interoperable with other U.S. and allied military networks; and (e) improve reliability, maintainability, and availability. This is accomplished by providing the submarine with a properly integrated mix of Navy standard and commercial off-the-shelf communication equipment covering a wide range of frequencies and modes. This project includes the Submarine Communications Support System (SCSS) which provides a system engineering approach for the design and evaluation of wideband and narrowband modernization plans. This project includes the follow-on program to SCSS, the Common Submarine Radio Room (CSRR). CSRR will leverage the development of VIRGINIA Class Exterior Communications System (ECS) which includes Open Systems Architecture (OSA) and install the VIRGINIA ECS on all classes of submarines. In support of the CSRR, funding is provided to expedite the Navy standard Multi-functional Crypto System (MCS) to meet CSRR need dates. The project provides for the development of a single Land-Based Integration and Test Facility that will consolidate existing Land -Based Testing Facilities into one facility that will support all classes of submarines. This project funds the development of a replacement of the Multi-Link Transmit Simulator (MLTS) to support future testing and training requirements. The project includes system engineering efforts associated with demonstration of new technology which will allow the submarine to be a participant in battle group and joint operations. The new technology will increase the submarine's communications, command, and control capability and interoperability with the rest of the Navy and exploits its stealth capabilities for battlefield dominance. This project also provides funds to integrate Singleton and Satellite Link 11 into the SCSS and the transition to a Tactical Data Link.

U) JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under SYSTEMS DEVELOPMENT AND DEMONSTRATION because it encompasses development and demonstration of new end-items prior to production approval decision.

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 50 of 58)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																															
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	FY 02	FY 03	FY 04	FY 05																														
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RDT&E Articles Quantity																																		
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RDT&E Articles Quantity																																		

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 51 of 58)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION	PROJECT NUMBER AND NAME X1411 Submarine Tactical Communications System																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></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>Submarine Communications Support System (SCSS)</td><td style="text-align: center;">0.840</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</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	Submarine Communications Support System (SCSS)	0.840	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Submarine Communications Support System (SCSS)	0.840	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">FY02 Accomplishments: Continued OPEVAL of SCSS on Los Angeles class submarine (platform schedule and availability changed due to Sept 11 events. Schedule and availability to support OPEVAL finalized in March 02) (\$.840).</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></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>Multi-functional Crypto System (MCS)</td><td style="text-align: center;">0.500</td><td style="text-align: center;">0.800</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</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	Multi-functional Crypto System (MCS)	0.500	0.800	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Multi-functional Crypto System (MCS)	0.500	0.800	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">FY02 Accomplishments: Continued development of Multi-functional Crypto System (MCS) (\$.500). FY03: Complete testing and certification of Multifunction Crypto System (MCS). INFOSEC certification of CSRR is a follow-on task to installing the MCS in the Radio Room System (\$.800).</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></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></td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</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		0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 80px; width: 100%;"></div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION	PROJECT NUMBER AND NAME X1411 Submarine Tactical Communications System		

(U) C. PROGRAM CHANGE SUMMARY:

	FY 2002	FY 2003	FY 2004	FY 2005
(U) Funding:				
Fy2003 President's Budget:	4.199	14.635		
FY2004 President's Budget	3.866	14.257	5.200	7.765
Total Adjustments	-0.333	-0.378	5.200	7.765
Summary of Adjustments				
SBIR/STTR Transfer	-0.054			
Economic Assumptions	-0.137	-0.109		
Business Process Reform	0.000	-0.058		
FFRDC reduction	-0.074	-0.056		
Inflation Adjustment	0.000	-0.155		
Misc Navy Adjustments	-0.068			
Subtotal	-0.333	-0.378	0.000	0.000

(U) Schedule:

Not Applicable.

(U) Technical:

Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5			PROGRAM ELEMENT NUMBER AND NAME 0604503N SSN 688 & TRIDENT MODERNIZATION			PROJECT NUMBER AND NAME X1411 Submarine Tactical Communications System			

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
3130000 Submarine Communications	87.177	120.291	104.935	161.954	149.624	138.116	169.545	168.88	Continue	Continue

Related RDT&E:
PE 0602232N Space and Electronic Warfare (SEW) Technology
PE 0204163N Fleet Communications

(U) E. ACQUISITION STRATEGY:

SCSS provides the system engineering and integration for the N77/N6 narrowband and wideband modernization plans on SSN 688 Class submarines. CSRR transforms SSN 688, SSBN 726 and SSN 21 Class radio room from suites of class-specific, closed system equipment to the VIRGINIA Class ECS which incorporates OSA communications equipment. The SCSS and OHIO SCSS programs are combined to provide the funding required to implement CSRR on all classes of submarines. CSRR will: leverage off VIRGINIA Class ECS design, use VIRGINIA Class ECS control and management software, apply a systems approach to design and implementation of JMCOMS, and maximize use of COTS products and emerging technologies.

Program Milestones: FY 2002 CSRR 4Q -MS-C
T&E Milestones: FY 2003 SCSS 2Q OT and CSRR 4Q DT/1Q FY 04 DT, FY 2004 CSRR 2Q DT, FY 2005 SSBN CSRR 2Q OPEVAL and SSN CSRR 4Q DT

(U) F. MAJOR PERFORMERS

Not Applicable.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604503N SSN 688 & TRIDENT MODERNIZATION			X1411 Submarine Tactical Communications System						
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											0.000	
Hardware Development*	CPFF	SSC-SD/NUWC Newport, RI	2.319	0.457		0.457	TBD	0.457	TBD		3.690	
Hardware Development**	CPFF	SSCs/NUWC Newport, RI	0.211							Continuing	Continuing	Continuing
MCS Development	Various	Motorola, misc labs	0.727	1.204	Various	0.413	TBD				2.344	
H/W Development Facilities	Various	NUWC Newport, RI									0.000	
Software Development	CPFFWX	SSC-SD San Diego, CA	1.763	2.135		0.800	TBD	0.140	TBD	2.000	6.838	
Software Development	WX	NUWC Newport, RI	5.498					2.856	TBD	Continuing	Continuing	Continuing
MLTS Replacement	CFCC	SPAWAR		0.611		0.869	TBD				1.480	
Systems Engineering	Various	Misc Labs	5.612	5.000	Various						10.612	Continuing
Site Platform Integration/Certification	Various	NUWC Newport, RI		3.094		1.505		1.853			6.452	
BCA/OPCON architecture	WX	NUWC Newport, RI		0.856		0.856		0.819			2.531	
Subtotal Product Development			16.130	13.357		4.900		6.125		Continuing	Continuing	Continuing
Remarks: * SCSS Development for SSN 688 Class submarines **CSRR Development for OHIO Class submarines												
Development Support Equipment*								1.050	TBD		1.050	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management								0.190			0.190	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		1.240		0.000	1.240	
Remarks: *Supports the development of the Multi-Link Training Simulator replacement												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604503N SSN 688 & TRIDENT MODERNIZATION				PROJECT NUMBER AND NAME X1411 Submarine Tactical Communications System					
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											0.000	
Operational Test & Evaluation											0.000	
Developmental/Operational T&E	Various	Various	4.530								4.530	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			4.530	0.000		0.000		0.000		Continuing	Continuing	
Remarks: Delays in platform availability resulted in shifting SCSS OPEVAL 2 Qtrs into FY02												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	Various	Various	3.690	0.900	Various	0.300	Various	0.400	Various	Continuing	Continuing	Continuing
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			3.690	0.900		0.300		0.400		Continuing	Continuing	
Remarks:												
Total Cost			24.350	14.257		5.200		7.765		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 56 of 58)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME								
RDT&E, N / BA5												PE: 0604503N TITLE: SSN 688 & TRIDENT MODERNIZATION												X1411 Submarine Tactical Communications System								
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 (CSRR) Milestones				MS A/B/C △													IOC ☆ △	☆ FRP Decision	☆ FRP Decision	First Deployment												
Prototype Phase																																
Software System Development				SSS △ □		CDR △				FAT △ □																						
Q-70 Delivery								ITF △ 2																								
Software Interim Delivery #1 Fleet SW Delivery								ITF △				Fleet △																				
Test & Evaluation Milestones																																
Development Test																																
Operational Test																																
Production Milestones																																
LRIP I FY 02, 03, 04					△ LRIP I Start																											
LRIP II FY 05														△ LRIP II Start																		
FRP FY 06																											△ FRP Start					
Deliveries								LRIP I (13)																								

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

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Exhibit R-4, Schedule Profile
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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2003			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-5	PE: 0604503N TITLE: SSN 688 & TRIDENT MODERNIZATION				X1411 Submarine Tactical Communications System			
Schedule Profile (CSRR)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
CSRR SW/HW Requirements Definition	3Q							
System/Subsystem Specification	3Q-4Q							
Milestone A/B/C/LRIP 1	4Q							
Software Requirements Specification	4Q	1Q						
Lead Q-70 Hardware		1Q-3Q						
Software CDR		2Q						
Software Design Implementation		2Q-4Q						
Outfitting Q-70 Hardware		3Q-4Q						
Q-70 Hardware Checkout (ITF Set)		4Q	1Q					
ITF Installation Checkout of Entire System		4Q	1Q					
VA/CSRR Conformance/Reconciliation		4Q	1Q					
Interim Software Delivery #1			1Q					
ITF C&M Q-70 Subsystem Check			1Q					
ITF Subsystem Checks with Interim Software			1Q-2Q					
Software FAT			1Q-2Q					
SSBN TRID Submittal (Draft)			1Q					
ITF System Level & Interface Checks (Collect Metrics)			2Q-3Q					
SSBN TRID Submittal (Preliminary)			1Q					
ITF Stress and Degraded Modes Tests (Collect Metrics)			2Q-3Q					
ITF Operational Environments Test - (EMI/EMC/thermal)			3Q					
Assessment of System Maturity / HSE Readiness			3Q					
Operational Test Readiness Review (OTRR)			3Q					
ITF HSE (Hardware/Software Evaluation)			3Q					
CSRR Operational Assessment			3Q					
CSRR JTIC (Joint Interoperability Test and Certification)			3Q					
SSBN TRID Submittal (Final)			3Q-4Q					
CSRR Strategic Certification Test			3Q-4Q					
SSBN TRID Approval			4Q					
Fleet Software Delivery			4Q					
STRATCOM/JCS Review & STRATCOM CERT Approval			4Q					
Final TRID Approval			4Q					
CSRR SSBN OT&E				3Q-4Q				
LRIP 2			4Q	1Q				
CSRR SSBN IOC (Initial Operating Capability)					2Q			
Full Rate Production					2Q			

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 58 of 58)