

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603562N/Submarine Tactical Warfare Systems			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	9.120	13.075	6.027	6.350	7.062	10.387	10.489	10.775
F0770/Advanced Sub. Spt Equipment	3.266	4.253	3.431	3.692	3.764	4.519	4.623	4.707
S9040/Multi-Line Towed Array	3.903	1.731						
S1739/Sub. Artic Warfare Development	1.951	7.091	2.596	2.658	3.298	5.868	5.866	6.068
Quality of RDT&E Articles								
Defense Emergency Response Funds (DERF) Funds: NOT APPLICABLE								
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). Areas of improved operational effectiveness for Electronic Warfare Support (ES) and Imaging technologies include Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance, and Reconnaissance. A continuing need exists to improve these capabilities in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. The Submarine Arctic Warfare Development program responds to the increased threat of Naval activity in the Littorals and the continuing threat of submarine and surface ship activity in regions of the world through the development of advanced submarine R&D technology to provide improved operational capability in shallow water regions. Particular emphasis is placed in the areas of sonar operability and maintainability, Littoral operations, mine warfare, tactical surveillance, weapon utility and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic shallow water specific improvements for existing sonars and weapons, development of class specific Arctic operational guidelines and the testing of ice-capable submarine support structures. This program also provides the framework for various R&D programs to conduct Test and Evaluation in shallow water and Arctic regions.								

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 19)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare System				PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	3.266	4.253	3.431	3.692	3.764	4.519	4.623	4.707
RDT&E Articles Qty								0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops submarine ES equipment and image processing technology. A continuing need exists to improve submarine capabilities to improve 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 and imaging to be effective in conducting the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection and Joint Strike. The program is divided into three project categories. Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance and Reconnaissance. The Threat Warning/Self Protection project evaluates the vulnerability of submarine masts, periscopes and sensors to visual, radar, and infrared detection and evaluates the state of the art technology to implement periscope/mast engineering improvements to reduce the counter detection threat. The Situation Awareness and Intelligence, Surveillance, and Reconnaissance projects develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility demonstration models (FDMs) are performed to develop realistic methods for evaluating the improvements, including deployment on submarines for testing.

Threat Warning/Self Protection sub-projects include: Active and passive Mast Signature Reduction (MSR), Low Probability of Intercept (LPI) Receiver, Single Mast Operations (Low Band DF Coverage), and ES Frequency Extension.

Situational Awareness sub-projects include: Automated Rangefinder, 360 degree (Remote control) Periscope, Submarine Common Imaging Workstation (SCIS), ES Vulnerability Server (EVS), Automatic Identification System (AIS), Photonics Mast Program Improvements (Digital Periscope- Cameras, Displays), and Imaging Technologies (super resolution, Multispectral fusion), and Communications Acquisition Direction Finding (CADF) LITE.

Intelligence, Surveillance and Reconnaissance sub-projects include: Imaging Enhancements, Submarine Offboard Sensors (UAV/UUV Pay Load), Modular Sensor System (Imaging/SIGINT modules), improved periscope interfaces (roller rings, digital low loss data conduit), and R.F. imaging.

All programs funded in this project are non-acquisition category programs described by Non-Acquisition Program Definition Document (NAPDD) # 556-872-872E1 which is currently under revision. The test articles identified consist of critical components of FDM's that will be fully developed during engineering development into Engineering Development Models (EDM's).

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

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)																	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> B. Accomplishments/Planned Program </div> <div style="width: 70%;"> Threat Warning / Self Protection </div> </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;">0.734</td> <td></td> <td></td> <td></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	0.734				RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.734																		
RDT&E Articles Quantity																			
Completed characterization of Radar Cross Section (RCS) for mast combinations, initiated electro-optic/infrared(EO/IR) mast signature characterization																			
<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></td> <td style="text-align: center;">0.238</td> <td></td> <td></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		0.238			RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		0.238																	
RDT&E Articles Quantity																			
FY03 - Complete Mast Signature Reduction (MSR) electro-optic/infrared (EO/IR) mast signature characterization. FY03 - Complete MSR RCS reduction over-water testing FY03 - Initiate MSR wake reduction modeling and model tank testing FY03 - Complete interface specification for Low Probability of Intercept (LPI) Receiver																			
<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></td> <td></td> <td style="text-align: center;">0.466</td> <td style="text-align: center;">0.597</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			0.466	0.597	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			0.466	0.597															
RDT&E Articles Quantity																			
FY04 - Complete MSR wake reduction model and techniques / materials investigation FY04 - Complete ES frequency Extension performance specification FY05 - Complete MSR RCS EDM IEM adapter model, testing, and evaluation FY05 - Complete wake reduction EDM model mast, testing, and evaluation FY05 - Complete LPI receiver Software and Land-based testing FY05 - Complete contact award for Low Band DF coverage EDM																			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)																	
B. Accomplishments/Planned Program (Cont.) Situational Awareness Enhancements																			
<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>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.786</td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><ul style="list-style-type: none">· Integrated ES Vulnerability Server (EVS) EDM with AN/BLQ-10, initiated improvements in HMI and algorithms based on test results.· Completed conceptual design and preliminary design review for Automated Rangefinder.</div>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	1.786				RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	1.786																		
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<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>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">3.214</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><ul style="list-style-type: none">· FY03 - Complete design and fabrication of Automated Rangefinder EDM and temporary fleet installation· FY03 - Complete concept definition and performance specification for 360 degree periscope· FY03 - Complete EVS improvements and At Sea testing of the EDM unit in an AN/BLQ-10 System and transition to production.· FY03 - Complete Concept definition for Image Processing Improvements</div>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		3.214			RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		3.214																	
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<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>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td style="text-align: center;">1.834</td><td style="text-align: center;">1.458</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><ul style="list-style-type: none">· FY04 - Complete At-Sea demonstration, system engineering, production engineering, and evaluation of Automated Rangefinder FDM· FY04 - Complete performance specification for Submarine Common Imaging Workstation (SCIS)· FY04 - Complete performance specification for Image Processing Improvements· FY05 - Manufacture, Install, and Test Automated Rangefinder Pre-production models in the fleet· FY05 - Complete contract award for 360 degree periscope EDM manufacture and evaluation· FY05 - Complete contract award and manufacture of EDM for image processing improvements</div>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost			1.834	1.458	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			1.834	1.458															
RDT&E Articles Quantity																			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)																	
B. Accomplishments/Planned Program (Cont.) Intelligence, Surveillance, and Reconnaissance Enhancements																			
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.746																		
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		0.801																	
RDT&E Articles Quantity																			
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			1.131	1.637															
RDT&E Articles Quantity																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 03 Pres Controls)	3.328	4.350	4.490	4.517
Current BES/President's Budget: (FY04/05 OSD/OMB Controls)	3.266	4.253	3.431	3.692
Total Adjustments	-0.062	-0.097	-1.059	-0.825
Summary of Adjustments				
Section 8123: Management Reform	0.029			
Post Production R&D Continuation	0.007			
Economic Assumption	0.009			
FY 02 Actuals (30 SEPT)	0.017			
Congressional program reductions	0.000	0.000	0.000	0.000
Congressional undistributed reductions	0.000	0.000	0.000	0.000
Congressional rescissions	0.000	0.000	0.000	0.000
SBIR/STTR Transfer	0.000	0.000	0.000	0.000
NWCF RATES	0.000	0.000	0.000	0.003
Inflation index reduction	0.000	0.072	0.078	0.000
Navy FMB Undistributed Reductions	0.024	0.025	0.981	0.822
Subtotal	0.062	0.097	1.059	0.825

Schedule:

Addition of Ice Camp in FY03.

Technical:

Not Applicable.

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Exhibit R-2a, RDTEEN Project Justification
 (Exhibit R-2a, page 6 of 19)

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APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems			PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)			

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
(U) Other Program Funding Summary: Not applicable. (U) Related RDT&E: (U) PE 0604503N(Submarine System Equipment Program) (U) PE 0604558N(New Design SSN Development) (U) PE 0604777N(Navigation /ID Systems)										

E. ACQUISITION STRATEGY: *

This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the tactical requirements identified in CNO letter, Serial N77/1U651534, dated 30 Oct 01, COMSUBLANT/COMSUBPAC Command Capability Issues (CCIs), Virginia Class SSN Operational Requirements Document objectives, a review, assessment and prioritization of Sensor and Processor efforts and SSN force level projections for SSN688/688I and SSN21 classes through FY2015. Project efforts develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility Demonstration Models (FDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

F. MAJOR PERFORMERS: **

John Hopkins University, Applied Physics Laboratory, Laurel, MD - Completed development of Electronic Vulnerability Server (EVS) EDM
 Syracuse Research Corporation, Syracuse, NY - Completed development and manufacture of Passive Surveillance Radar (PSR) EDM.
 NAWC, China Lake, CA - Completed conceptual and preliminary design of automated range finder
 NUWC, Newport, RI - Completed characterization of radar cross section (RCS) for mast combinations
 LMC, Syracuse - Completed integration of EVS and PSR EDMs into AN/BLQ-10 baseline software and the PSR controller software

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603562N/Submarine Tactical Warfare Systems			PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)						
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	SS/CPIF	BAE/Argon/LMC/KEO	0.000	0.920	10/02	1.020	10/03	1.220	10/04	TBD	TBD	TBD
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WR	NUWC Newport, RI	10.563	1.065	10/02	0.898	10/03	0.852	10/04	CONT	CONT	N/A
	WR/RC	NAWC China Lake	11.887	1.200	10/02	0.200	10/03	0.080	10/04	CONT	CONT	N/A
Licenses											0.000	
GFE	N/A	N/A									0.000	
Miscellaneous	Various	Various	10.665	0.478	Various	0.701	Various	0.905	Various	CONT	CONT	N/A
Award Fees											0.000	
Subtotal Product Development			33.115	3.663		2.819		3.057		CONT	CONT	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Engineering Technical Services	C/CPFF	AT&T GSI, Vienna,VA	9.363	0.200	11/02	0.288	11/02	0.290	10/02	CONT	CONT	N/A
GFE											0.000	
Award Fees											0.000	
Subtotal Support			9.363	0.200		0.288		0.290		CONT	CONT	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603562N/Submarine Tactical Warfare Systems			PROJECT NUMBER AND NAME F0770/Advanced Submarine Support Equipment Program (ASSEP)						
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 Survices	C/CPFF	Various	1.484							CONT	CONT	N/A
Travel	TOs	Various	0.166	0.050		0.050		0.050		0.000	0.316	
Labor (Research Personnel)											0.000	
SBIR Assessment				0.340		0.274		0.295		CONT	CONT	
Subtotal Management			1.650	0.390		0.324		0.345		0.000	CONT	
Remarks:												
Total Cost			44.128	4.253		3.431		3.692		CONT	CONT	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification

DATE:

February 2003

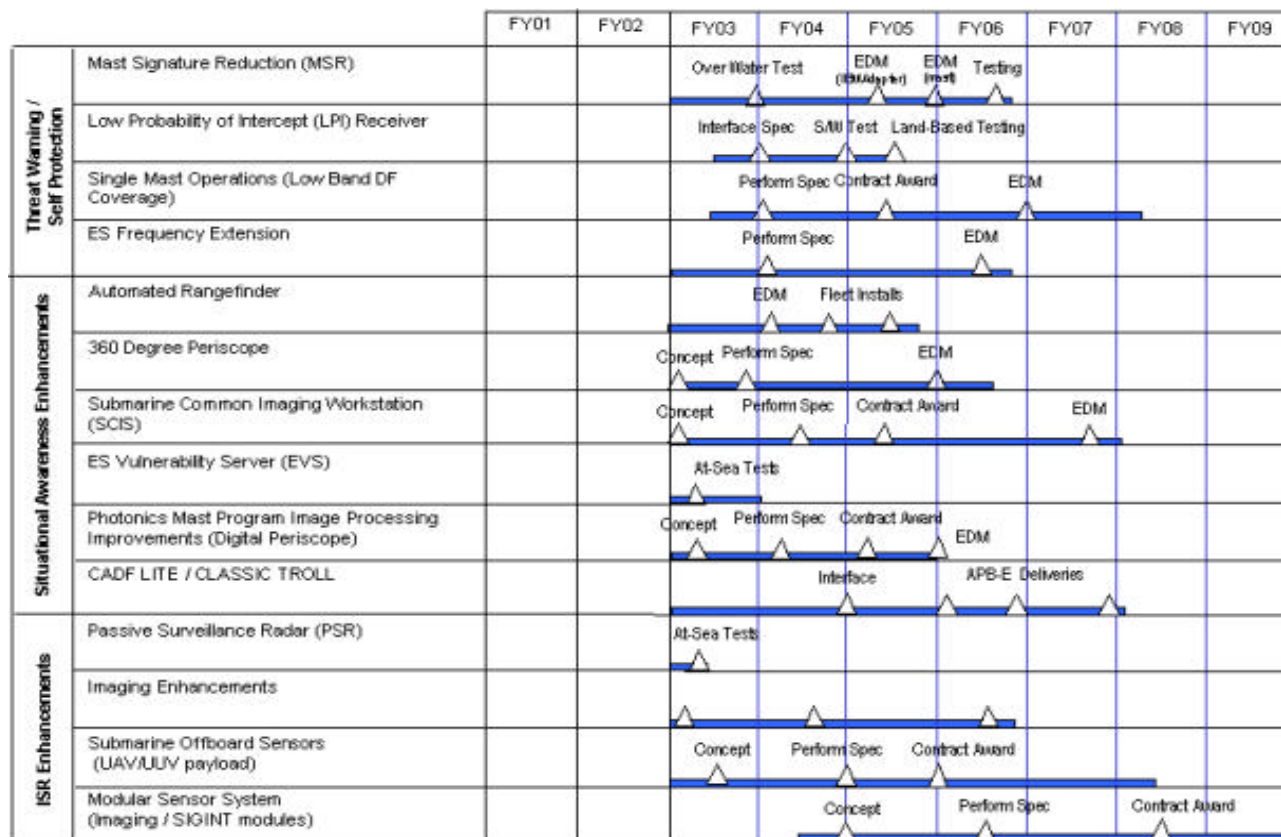
APPROPRIATION/BUDGET ACTIVITY

RDT&E, N/BA-4

PROGRAM ELEMENT NAME AND NUMBER

0603562N/Submarine Tactical Warfare System

PROJECT NAME AND NUMBER

F0770/Advanced Submarine Support Equipment Program (ASSEP)

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Exhibit R-4, RDT&E Project Justification**UNCLASSIFIED**

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Exhibit R-4a, Schedule Detail					DATE: February 2003			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-04	0603562N/Submarine Tactical Warfare Systems				F0770/Advanced Submarine Support Equip Prog (ASSEP)			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Threat Warning / Self Protection								
MSR Over Water Testing		Q4						
LPI Receiver Interface Specification		Q4						
Low Band DF & ES Freq Extend PerfSpec			Q1					
LPI Receiver Software Test			Q4					
MSR IEM Adapter EDM / Low Band DF EDM Contract Award				Q2				
LPI Receiver Land Based Testing				Q2 - Q3				
MSR Mast EDM				Q4				
MSR Test and Evaluation					Q1 - Q3			
Low Band DF EDM					Q4			
Situational Awareness Enhancements								
Automated Rangefinder Performance Specification	Q2							
EVS EDM	Q3							
360 Degree Periscope Concept / SCIS Concept		Q1						
Image Processing Improvements Concept		Q2						
EVS At-Sea Testing and Evaluation		Q3,Q4						
360 Degree Periscope Performance Specification		Q4						
Automated Rangefinder EDM			Q1					
Image Processing Improvements Performance Specification			Q2					
SCIS Performance Specification		Q3						
Automated Rangefinder Fleet Install and Evaluation		Q3,Q4						
CADF LITE Interface			Q4					
SCIS EDM Contract Award				Q2				
Image Processing Improvements EDM Contract Award				Q4				
CADF LITE APB Deliveries					Q1 - Q4	Q4		
Intelligence, Surveillance, Reconnaissance Enhancements								
PSR EDM Test and Integration	Q2-Q4	Q1						
PSR At Sea Tests	Q4	Q2, Q3						
Imaging Enhancements APB		Q2	Q4	Q4				
Submarine Offboard Sensors Concept		Q3						
Submarine Offboard Sensors Performance Specification			Q3					
Submarine Offboard Sensors EDM Contract Award				Q4				
Modular Sensor System Concept			Q4					
Modular Sensor System Performance Specification					Q3			

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 11 of 19)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E, N / BA-4	PE 0603562N Submarine Tactical Warfare System				S1739 Submarine Special Operations Support			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	1.951	7.091	2.596	2.658	3.298	5.868	5.866	6.068
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Artic project responds to the increased threat of Naval activity in the Littoral and continuing threat of submarine and surface ship activity in all regions of the world through the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in Arctic regions, testing of ice-capable submarine structures, and development of class specific Arctic shallow water operational guidelines. This program also provides the framework for various Research and Development (R&D) programs to conduct Test and Evaluation in the shallow water and Arctic regions.

Project S9040 is authorized by Congress to develop Fiber Optics Multi-Line Towed Array.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603562N Submarine Tactical Warfare System	PROJECT NUMBER AND NAME S1739 Submarine Special Operations Support																	
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>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.951</td><td style="text-align: center;">7.091</td><td style="text-align: center;">2.596</td><td style="text-align: center;">2.658</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	1.951	7.091	2.596	2.658	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	1.951	7.091	2.596	2.658															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"><p>Conducted and Supported Ice Exercise and ICEOPS operations. Prep for FY03 Ice Camp. Developed database of Arctic operations surfacing data. Initiated Structural Analysis of VIRGINIA Class Sail.</p><p>FY 2003 - 2005 Plans</p><p>Provide planning, logistics, construction support for Ice Camp Operations (ICEX 1-03) and conduct training to improve Arctic divers proficiency (CEX 1-03). Conduct support FY05 ICEX and ICEOPS operations.</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>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 70px;"></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>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 70px;"></div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA4	PE 0603562N Submarine Tactical Warfare System	S1739 Submarine Special Operations Support		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 03 Pres Controls)	2.077	7.251	2.273	2.301
FY04/05 Congressional Controls	1.951	7.091	2.596	2.658
Total Adjustments	-0.126	-0.160	0.323	0.357
Summary of Adjustments				
Issue 28110 Shortfall			0.485	0.522
Section 8123 Management Refo	-0.018			
SBIR/STTR Transfer	-0.052			
Section 313, PL 107-206: Revised	-0.001			
Naval Working Capitol Funding Naval Surface Warfare			-0.003	-0.003
FY02 BTR (July-02)	-0.040			
Business Process Reform		-0.029		
Economic Assumptions (Sec. 813	-0.005	-0.041		
IT Cost Growth (Sec. 8109)		-0.013		
Overhead and Direct Cost Reduc			-0.041	-0.042
Ftprint Reduction-Mothballes/S			-0.004	-0.004
Single Site Common Support (NS			-0.006	-0.006
Reduction in Support Contracto			-0.046	-0.055
Examine 'Non-Core' Competencie			-0.002	-0.002
FY02 Actuals (30-Sept)	-0.010			
NSWC PBD 426			-0.001	
Naval Working Capitol Funding Rates - R&D Fuel			0.003	0.004
Inflation Savings		-0.077		
PBD-604 Nonpay Purchase Infl			-0.048	
PBD-604 Nonpay Inflation			-0.014	
PBD-604: FY05/09 Inflation				-0.057
Subtotal	-0.126	-0.160	0.323	0.357
Schedule:				
N/A				
Technical:				
N/A				

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 14 of 19)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603562N Submarine Tactical Warfare System	PROJECT NUMBER AND NAME S1739 Submarine Special Operations Support
<p>D. OTHER PROGRAM FUNDING SUMMARY: N/A</p> <p>E. ACQUISITION STRATEGY: * NON-ACAT Progam</p> <p>F. MAJOR PERFORMERS: ** <u>Command Submarine ForceUS PacificFleet (COMSUBPAC)</u> - Develop and definitize an Arctic-Deploying side Scan Sonar replacement plan, which will deliver a significant improved qualitative view of the underside of the ICE Canopy Sighting and tracking surfaceable features of current submarines, and the future VA Class submarine. <u>Applied Physics Laboratory /University of Washington (APL/UW)</u> - Conduct Ice Camp planning</p>		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA4			PROGRAM ELEMENT PE 0603562N Submarine Tactical Warfare System			PROJECT NUMBER AND NAME S1739 Submarine Special Operations Support						
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	
Ancillary Hardware Development											0.000	
Systems Engineering	WR	NSWC Carderock	0.200	0.200	11/02	0.200	11/02	0.200	11/02		0.800	
Systems Engineering		EB Corp	0.025								0.025	
Systems Engineering	WR	NSWC INDIAN HEAD	0.051								0.051	
Systems Engineering	WR	SPAWAR	0.070	0.050	11/02	0.050	11/01	0.050	11/01		0.220	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal Product Development			0.346	0.250		0.250		0.250		0.000	1.096	
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	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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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			PE 0603562N Submarine Tactical Warfare System			S1739 Submarine Special Operations Support						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SUBDEVRON Five	4.768	3.610	11/02	2.086	11/03	2.148	11/04		12.612	
Developmental Test & Evaluation	WR		0.015								0.015	
Developmental Test & Evaluation	WR	CMDR,3rd NAVCON BRIGA	0.200								0.200	
Developmental Test & Evaluation	WR	CMDR,2nd NAVCON BRIGA	0.100	0.150	11/02	0.150	11/03	0.150	11/04		0.550	
Developmental Test & Evaluation	SS/CPFF	APL/University of Washingto	0.294	3.000	11/02						3.294	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			5.377	6.760		2.236		2.298		0.000	16.671	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support			0.308	0.071	11/02	0.100	11/03	0.100	11/04		0.579	
Travel			0.030	0.010	11/02	0.010	11/03	0.010	11/04		0.060	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.338	0.081		0.110		0.110		0.000	0.639	
Remarks:												
Total Cost			6.061	7.091		2.596		2.658		0.000	18.406	
Remarks:												

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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 / BA4										PE 0603562N Submarine Tactical Warfare System										S1739 Submarine Special Operations Support												
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				
Arctic Ice Exercise	[Solid Black Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]			
Define test/exercise	[Solid Black Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]			
Preparation hull assignment	[Solid Black Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]			
Exercise Operations			▲				△				△					△				△							△					
Quick look/Fnial Report				△		△	△	△			△	△			△	△					△	△					△	△				
				Q-look		Final	Q-look	Final			Q-look	Final			Q-look	Final					Q-look	Final					Q-look	Final				
ICE OPS							[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]					
Define test/exercise							[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]					
Preparation hull assignment							[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]				[White Bar]					
Exercise Operations										△	△			△	△			△	△		△	△				△	△					
Quick Look Report/Final										△	△			△	△			△	△		△	△				△	△					
										Q-look	Final			Q-look	Final			Q-look	Final			Q-look	Final				Q-look	Final				
Other																																
Hull Structure Analysis (HAS)	△				△																											
HAS Complete					△		△																									
HAS Advanced Sail					△					△																						
HAS Advanced Sail Complete										△		△																				

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

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 18 of 19)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT& BA4	PROGRAM ELEMENT PE 0603562N Submarine Tactical Warfare System				PROJECT NUMBER AND NAME S1739 Submarine Special Operations Support			
Schedule Profile -	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Artic Ice Exercise								
Define test/exercise, objectives and experiments	1Q-3Q	1Q-2Q	1Q-2Q			12Q		1Q-2Q
Preparations hull assignments	1Q-3Q	1Q-3Q	1Q-3Q	1Q-3Q		1Q-3Q		1Q-3Q
Exercise Operations	3Q	3Q	3Q	3Q	3Q	4Q		2Q
Quick look final report	4Q	2Q-4Q	3Q-4Q	3Q-4Q			1Q-2Q	3Q-4Q
ICE OPS								
Define test/exercise, objectives and experiments		4Q	1Q-2Q,4Q	1Q-2Q	3Q-4Q	3Q-4Q	3Q-4Q	1Q-2Q
Preparations hull assignments		4Q	1Q-2Q,4Q	1Q-2Q	3Q-4Q	3Q-4Q	3Q-4Q	1Q-2Q
Exercise Operations			12Q-4Q	12Q-4Q	1Q,3Q-4Q	1Q, 3Q-4Q	1Q, 3Q-4Q	1Q, 3Q-4Q
Quick look final report			2Q-4Q	2Q-4Q	2Q-4Q	2Q-4Q	2Q-4Q	2Q-4Q
Other			1Q					
Hull Structure Analysis VA	2Q-4Q	1Q-2Q						
Hull Structure Analysis VA complete		2Q-3Q						
Hull Structure Analysis for VA Advanced Sail		1Q-4Q	1Q-2Q					
Hull Structure Analysis for VA Advanced Sail Complete			3Q-4Q					

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 19 of 19)