

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /					R-1 ITEM NOMENCLATURE PE 0603553N Surface ASW/1704 ASW Advanced Development			
					BA4			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	33.006	34.017	25.560	30.541	36.549	29.907	51.763	51.895
ASW Advanced Development/1704	26.821	28.588	25.560	30.541	36.549	29.907	51.763	51.895
9999N/Congressional Adds	6.185	5.429	0.000	0.000	0.000	0.000	0.000	0.000
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>The Anti Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Efforts focus on resolution of technical issues associated with providing capability against the Year 2006 and beyond threat, with emphasis on shallow water/littoral area and deep water Undersea Warfare (USW) and on demonstration and validation of USW concepts and technology. Key technology areas include active sonar transmissions; advanced signal and data processing; active sonar classification; towed and hull arrays; and transducer technology. Starting in FY07, the ASWCross Functional Team (formally known as Task Force ASW) initiative will include new and innovative technologies. These technologies include design; development; integration; and testing of future Undersea Superiority Systems. These systems include distributed sensor systems; Vertical Line Array; static active buoy field; submarine countermeasures; compact rapid effect weapon; longer range radio system; multi-static sonar; and multi-sensor data fusion, including multi-platform data fusion and net-centric Undersea Warfare (USW) concepts. This Program Element, 0603553N, has been designated to support Multi-Static Active ASW (MAASW) efforts associated with the Distant Thunder program, and other emerging multi-static technologies, and the CNO's ASW CFT initiative.</p> <p>The MAASW project conducts advanced development and testing of active multistatic acoustic concepts. The concept development focus on providing surface ships combat groups with the capability of detection, classification, and localization of quiet threat submarines in difficult acoustic environments associated with Littoral waters. The project concentrates on the development of acoustic processor algorithms, alternative cost-effective active sources, and information sharing technologies to develop a coordinated multi-static acoustic picture, employing distributed sensors and active sources.</p> <p>The ASW Cross Functional Team (CFT) initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. CFT will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against U.S. and coalition forces", necessitates a change in the calculus of how the US Navy conducts ASW. Central to CFT's achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end timeline; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these keys, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. The most promising technology concepts from government laboratories, university research centers, and industry are developed to the point where these technologies can be tested in at-sea experiments, with the objective of transitioning those which demonstrate exceptional capability to Programs-of-Record. In addition to developing and testing promising new technologies, an effective system of measuring the performance of existing and new surface ship ASW systems is essential to enable data based assessment of the capabilities and shortfalls in the performance of these systems, in realistic scenarios through a Surface Ship Enhanced Measurement Program (SSEMP). By rigorously closing the feedback loop, SSEMP enables data based programmatic decision making for Surface Ship combat systems.</p> <p>Project Unit 9999 is comprised of FY06 Congressional Adds for Improved Surface Vessel Torpedo Launcher, Automated Readiness Measurement System, Continuous Active Sonar, Medium Offboard Distributed Acoust Sensors, Advanced Receive While Transmit Sonar and All Electric Torpedo Launcher.</p>								
B. PROGRAM CHANGE SUMMARY:								
Funding:	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>				
FY 2007 President's Budget	23.433	38.696	42.284	45.622				
FY 2008 President's Budget	33.006	34.017	25.560	30.541				
Total Adjustments	9.573	-4.679	-16.724	-15.081				
Undist. General/Cong. Provisions	-0.077	-0.129	0.176	0.294				
Congressional Program Reductions		-10.000						
Congressional Increases		5.450						
Reprogrammings	9.950							
SBIR/STTR Transfer	-0.300							
Program Adjustments			-3.049	-3.024				
Pricing Adjustments			-0.421	-0.421				
Technical Adjustments			-13.430	-11.930				
Subtotal	9.573	-4.679	-16.724	-15.081				
Schedule:	Not Applicable							
Technical:	Not Applicable							

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 1704 ASW Advanced Development		
B. Accomplishments/Planned Program				
	FY 2006	FY 2007	FY 2008	FY 2009
MAASW/Distant Thunder/Subtotal Cost	2.000	2.230	0.000	0.000
RDT&E Articles Quantity				
<p>MAASW/Distant Thunder - Conducted Government Acceptance Test and integrated of MAASW/DT SQR-19 functional segment to open systems architecture to support SQQ-89 A(V)15 combat system. In the process of the development of MFTA software engines , and will integrate in to an open systems architecture in FY07. Conducted at-sea testing and analyzed data collected to support processor improvement. Developed and began implementation of hardware technology refresh strategy. Obtained flight certification for P-3 AIP aircraft. FY07 plans include completing transition of remaining processor elements to opens systems architecture, completing hardware technology refresh, continuing spiral development of processor algorithms, developing improved shipboard mission planning tools (TACAID Play Book), and introducing new aircraft independent source technology.</p>				
	FY 2006	FY 2007	FY 2008	FY 2009
Cross Functional Team (CFT) /Subtotal Cost	24.821	26.358	25.560	30.541
RDT&E Articles Quantity				
<p>Cross Functional Team (CFT) - Conducted first CFT experiment of promising and innovative ASW technologies, collected and analyzed data, and reported results. Planned and conducted second CFT ASW experiment and planned third experiment to test other promising technologies, including both industry and university affiliated research center proposed technologies. Issued an industry solicitation to obtain new technology ideas, and began strategic investment in the most promising transformational technologies derived from this solicitation. Initiated a Surface Ship Enhanced Measurement Program to begin collecting, analyzing, assessing and reporting on the performance of Surface Ship ASW systems to support results based decision making. FY07-FY09 plans include continued development and procurement of specific innovative technologies, procurement of reusable test assets for specific technology concepts, continued investment in developing and testing the highest potential industry originated technology concepts, and continuing to perform data collection, analysis, assessment and reporting of Surface Ship ASW combat system and off-board/ distributed ASW systems performance under realistic conditions.</p>				

Exhibit R-3 Cost Analysis (page 1)													DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME										
RDT&E, N / BA4			PE 0603553N Surface ASW		1704 ASW Advanced Development										
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Multi-static Sonar Development	WR	NUWC Newport	5.668	0.199	12/05	1.015	12/06	0.000		0.000			6.882		
Multi-static Sonar Development	WR	SUPSHIP Bath Min.	0.021										0.021		
Multi-static Sonar Development	WR	PASCAGOULA MS	0.017										0.017		
Multi-static Sonar Development	WR	NAWC/Key West	0.010										0.010		
Multi-static Sonar Development	WR	NAWC/Paxuxent River	1.674	0.230	12/05	0.000	12/06	0.000		0.000			1.904		
Multi-static Sonar Development	CPFF	BBN	3.685	0.218	11/05	0.785	11/06	0.000		0.000			4.688		
Multi-static Sonar Development	CPFF	APL/JHU	0.350										0.350		
Multi-static Sonar Development	RCP	FLT. Industry SUP Center	0.010										0.010		
Multi-static Sonar Development	RCP	ONR	0.472										0.472		
Various	Various	Various	0.701	0.255	01/06	0.430	01/07	0.000		0.000			1.386		
Subtotal Product Development			12.608	0.902		2.230		0.000		0.000			15.740		
Remarks:															
Developmental Test & Evaluation	WR	NUWC/Newport	2.905	0.206	11/05	0.655	11/06	0.000		0.000			3.766		
Developmental Test & Evaluation	WR	NAWC/Pax River	1.461	0.173	11/05	0.170	11/06	0.000		0.000			1.804		
Developmental Test & Evaluation	CPFF	BBN	1.323	0.250	11/05	0.300	11/06	0.000		0.000			1.873		
Developmental Test & Evaluation	CPFF	AAC	0.212										0.212		
Developmental Test & Evaluation	WR	SUPSHIP Bath Min.	0.033										0.033		
Developmental Test & Evaluation	WR	NUWC/Keyport	0.933										0.933		
Developmental Test & Evaluation	WR	NSWC/Carderock, MD	0.695										0.695		
Developmental Test & Evaluation	WR	NSWC/Dahlgren, VA	0.040										0.040		
Developmental Test & Evaluation	WR	NSWC/Indian Head	0.035										0.035		
Developmental Test & Evaluation	CPFF	APL/JHU, MD	1.536										1.536		
Developmental Test & Evaluation	CPFF	ARL/UT	0.174	0.000	11/05	0.150	11/06	0.000		0.000			0.324		
Developmental Test & Evaluation	CPFF	Various	0.625	0.165	11/05	0.366	11/06	0.000		0.000			1.156		
Developmental Test & Evaluation	CPFF	Progeny, Inc.	1.217										1.217		
Developmental Test & Evaluation	CPFF	IPD	0.055										0.055		
Developmental Test & Evaluation	MIPR	U.S. ARMY/MITRE	0.000										0.000		
Developmental Test & Evaluation	WR	SPAWAR Systems Center	0.558										0.558		
Subtotal T&E			11.802	0.794		1.641		0.000		0.000			14.237		
Remarks:															

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2007				
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N / BA4				PE 0603553N Surface ASW			1704 ASW Advanced Development							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
At-Sea Test/Experiment (CFT)	C/CPFF	JHU/APL, MD	5.100	5.500	10/05	4.000	10/06	4.000	10/07	4.000	10/08	Continuous	Continuous	
At-Sea Test/Experiment	WX	NAVSEA/NEWPORT, RI	10.300	8.000	10/05	6.684	10/06	8.577	10/07	9.000	10/08	Continuous	Continuous	
At-Sea Test/Experiment	RCP	ONR/ANTEON	0.930											0.930
At-Sea Test/Experiment	RCP	ONR/BAE	1.800											1.800
At-Sea Test/Experiment	RCP	ONR		5.000										5.000
Enhanced Data Collection (SSEMP)	C/CPFF	JHU/APL, MD	2.000	2.000	10/05	2.000	10/06	0.000	10/07	0.000	10/08	Continuous	Continuous	
Enhanced Data Collection														
and Analysis (SSEMP)	Various	Various	3.761	1.000	10/05	1.000	10/06	0.000	10/07	0.000	10/08	Continuous	Continuous	
Technology Development	C/CPFF	Various		3.225		5.633		9.000		16.847				
Analysis & Assessment	Various	Various				5.000		3.583		0.294				
Subtotal T&E			23.891	24.725		24.317		25.160		30.141		0.000	7.730	
Remarks:														
Contractor Engineering Support														
SBIR														
Government Engineering Support														
Program Management Support	CPFF	Stanley Assoc.	1.021	0.350	01/06	0.350	01/07	0.350	01/08	0.350	01/09	Continuous	Continuous	
Program Management Support	CPFF	Anteon Corp.	0.125	0.000		0.000		0.000		0.000		Continuous	Continuous	
Travel			0.160	0.050	11/05	0.050	11/06	0.050	11/07	0.050	11/08	Continuous	Continuous	
Labor (Research Personnel)														
Overhead														
Subtotal Management			1.306	0.400		0.400		0.400		0.400		Continuous	Continuous	
Remarks:														
Total Cost			49.607	26.821		28.588		25.560		30.541		Continuous	Continuous	
Remarks:														

EXHIBIT R4, Schedule Profile																				DATE: February 2007												
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME																	
RDT&E, N / BA4					PE 0603553N Surface ASW										1704 ASW Advanced Development																	
Fiscal Year	2006				2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAASW																																
Conduct At Sea Test (MAASW) <i>Test processor algorithm, tactics, CONOPS, and conduct crew training</i>																																
At Sea Test Analysis and System Evaluation <i>Analyze processor algorithm, tactics, CONOPS</i>																																
Processor Improvements <i>Develop improved processor algorithm, tactics, and CONOPS</i>																																
ASW - CFT																																
Technology Development																																
<i>Develop promising technologies from government labs, university research centers, and industry</i>																																
<i>Industry Solicitation Multiphase approach to identifying the most promising technologies</i>																																
Conduct At-Sea Experiment <i>Test promising technologies</i>																																
Analyze Experimental Data <i>Evaluate performance of technologies, potential for providing capability, readiness for transition</i>																																
SSEMP																																
<i>Conduct data collection and analysis of selected exercises</i>																																

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

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APPROPRIATION/BUDGET ACTIVITY RD RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 9999 Congressional Plus-Ups : VARIOUS
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CONGRESSIONAL PLUS-UPS:

	FY 06	FY 07		
9185C	2.218	1.345		
Improved Surface Vessel Torpedo Launcher				

Funds will be used to support technology insertion initiatives associated with the Surface Vessel Torpedo Tube (SVTT) MK 32 Program. These efforts will help support the Navy's surface ship platform needs and will focus specifically on the development of Advanced Surface Launcher (ASL) prototypes to production levels and completion of launcher testing. This investment will be used to upgrade the current single-mission launcher to a multi-mission launcher (ASL), resulting in the following: increase in warfighting capability; increase in operational readiness; improved personnel safety; and reduced life cycle costs on both existing and future ships.

	FY 06	FY 07		
9809C	0.000	1.793		
Automated Readiness Measurement System (ARMS)				

Funds will be used to continue development of an ARMS to include the following: Preliminary and Critical Design Reviews (PDR/CDR) to promulgate the ARMS system design/architecture; development of a Software Requirement Specification (SRS) describing the requirements to be implemented in ARMS software by developing specific requirements for spiral 0; design of ARMS System Architecture as a System Design Document (SDD); establishment of a software development facility consisting of the hardware, software and configuration management tools required to develop the ARMS system; development of ARMS software to execute on designated target hardware as described in the design documentation; laboratory integration and testing of the ARMS system through engineering analysis, and informal and formal test, including the development of test documentation and reports; integrate testing concurrent with USW-DSS testing for

	FY 06	FY 07		
9809N	0.481	0.000		
Automated Readiness Measurement System				

Funding will be used to transition Automated Readiness Measurement System (ARMS) to an automated assessment capability within the Surface Combatant Open Architecture Computing Environment. ARMS will provide a tool to support continuous certification with periodic verification of key surface force training and maintenance readiness indicators. It will be mission focused, task based, and provide specific feedback to all levels of command. Assessments will support resource allocation, training, tactical decision aids, experimentation, and other readiness improvement measures.

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APPROPRIATION/BUDGET ACTIVITY RD RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 9999 Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06	FY 07		
9810N	2.523	0.000		
Continuous Active Sonar				

This Congressional Add will assist the acceleration of concept evaluation and transition, possibly via both backfit to existing ASW platforms and forward fit to emergent manned and unmanned ASW assets.

	FY 06	FY 07		
9811N	0.963	0.000		
Medium Offboard Distributed Acoustic Sensors				

Funds provided by Congress to address the utilization of offboard distributed netted systems, as one part of the solution to littoral combat, against quiet diesel submarines. It provides significant enhancements in capability by utilizing in buoy processing and netted sensors,, allowing larger sensor numbers, longer duration, and over the horizon operations, in contrast to existing sonobuoys.

	FY 06	FY 07		
9984N	0.000	0.996		
Advanced Receive While Transmit Sonar				

The funds would be used to develop low frequency capability of this new technology and conduct at-sea testing. This builds upon the work being done under the FY06 congressional plus-up that developed a mid-frequency capability. This project addresses critical shortfalls in ASW detection range as well as time delays to classify and track threat submarines resulting from the proliferation of quiet, technologically advanced platforms in the hands of nations that might chose to deny us freedom of the seas. It has application to both open ocean and littoral area operations. The added funding will help accelerate concept evaluation and transition possibly via both backfit to existing ASW platforms and forward fit to emergent manned and unmanned ASW assets.

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APPROPRIATION/BUDGET ACTIVITY RD RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 9999 Congressional Plus-Ups : VARIOUS
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CONGRESSIONAL PLUS-UPS:

	FY 06	FY 07		
9985N	0.000	1.295		
All Electric Torpedo Launcher				

Funds will be used to study the feasibility of replacing the Surface Vessel Torpedo Tube (SVTT) with an Advanced Electromagnetic Launcher (AEL), primarily for use on the new DDG-1000 and Littoral Combat Ship (LCS) Anti-Submarine Warfare (ASW) Mission Packages. The AEL is a new design that uses electromagnetic launch technology to achieve silent launch of the torpedo.

