CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		R-1 ITEM NOMENCLATURE **0603553N/SURFACE ASW**					
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	33.181	46.475	29.574	36.399	29.774	51.663	51.824
1704 / Undersea Warfare	27.818	25.013	29.574	36.399	29.774	51.663	51.824
9999 / CONGRESSIONAL ADDS	5.363	21.462	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

The Anti-Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Program Element (PE) 0603553N has been designated to support emerging multi-static technologies, and the CNO's ASW Initiative. Efforts focus on resolution of technical issues associated with providing capability against the FY07 and beyond threat, with emphasis on shallow water/littoral areas, deep water Undersea Warfare (USW), and 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; transducer technology; and periscope detection techniques. Starting in FY07, the CNO ASW Initiative (formerly known as Task Force ASW) will include the development of new and innovative technologies. Efforts associated with 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 USW concepts.

Project Unit 9999 is comprised of Congressional Adds for Improved Surface Vessel Torpedo Launcher (FY07/08), Automated Readiness Measurement Systems (ARMS)(FY07), Advanced Receive While Transmit Sonar (FY07), All Electric Torpedo Launcher (FY07), and Small Business Technology Insertion (FY08).

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY 2008 President's Budget Controls	34.017	25.560	30.541
FY 2009 President's Budget Controls	33.181	46.475	29.574
Total Adjustments	-0.836	20.915	-0.967
Cong Adds/Undistributed Adjustments/Rescissions	-0.036	21.298	0.000
Pricing Adjustments			-0.027
Program Adjustments		-0.383	-0.940
Small Business Innovative Research (SBIR) Tax Assessment	-0.800	0.000	0.000
Subtotal	- 0.836	20.915	-0.967

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

E. MAJOR PERFORMERS:
- Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, MD. Maintain and install the two air Multi-Static Active ASW Distant Thunder (MAASW/DT) Rapid Deployment Kit (RDK) systems; lab test and processor updates for these systems; maintain NAVAIR authorization to install and fly this Advanced Development Model (ADM) system in P-3C and P-3C ASUW Improvement Program (AIP) TYCOM aircraft.

- Naval Undersea Warfare Center (NUWC), Newport, RI. Provide management support in working with various administrative and operational organizations to develop and implement teams for MAASW/DT development and evaluation. Support laboratory and at-sea testing of DT processor algorithms for ship installations. Perform planning, execution, and analysis of experiments.

- Johns Hopkins University/Applied Physics Laboratory (JHU/APL), Laurel, MD. Participate in technology evaluation, experiment planning, execution, and analysis.

- University of Texas/Applied Research Laboratories (UT/ARL), Austin, TX. Participate in technology evaluation, test planning, and analysis.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**				PROJECT NUMBER AND NAME **1704/Undersea Warfare**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	27.818	25.013	29.574	36.399	29.774	51.663	51.824
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Multi-Static Active ASW (MAASW) project conducts advanced development and testing of active multistatic acoustic concepts. Development focuses on providing surface ship combat groups with the capability of detection, classification, and localization of quiet threat submarines in difficult acoustic environments associated with littoral waters. This project concentrates on the development of acoustic processing algorithms, alternative cost-effective active sources, and information sharing technologies to develop a coordinated multi-static acoustic picture, employing distributed sensors and active sources.

The CNO ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. The CNO ASW initiative 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 CNO ASW initiatives 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 key approaches, 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.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**	PROJECT NUMBER AND NAME **1704/Undersea Warfare**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Multi-Static Active ASW (MAASW)/ Distant Thunder (DT)	2.610	0.000	0.000
RDT&E Articles Quantity	0	0	0

Conducted Government Acceptance Test (GAT) and integration of the MAASW/DT and AN/SQR-19 Towed Array functional segment to an open systems architecture to support the AN/SQQ-89A(V)15 combat system. For FY07, developed Multi-Function Towed Array (MFTA) software engines with subsequent integration into an open systems architecture. Conducted at-sea testing and analyzed data collected to support processor improvements. Developed and began implementation of a hardware technology refresh strategy. Obtained flight certification for P-3 AIP aircraft. FY07 plans also included completing transition of remaining processor elements to an open systems architecture, completing hardware technology refresh, continuing spiral development of processor algorithms, developing improved shipboard mission planning tools (Tactical Airborne Information Document (TACAID) Play Book), and introducing new aircraft independent source technology.

	FY 2007	FY 2008	FY 2009
CNO ASW Initiative	25.208	25.013	29.574
RDT&E Articles Quantity	0	0	0

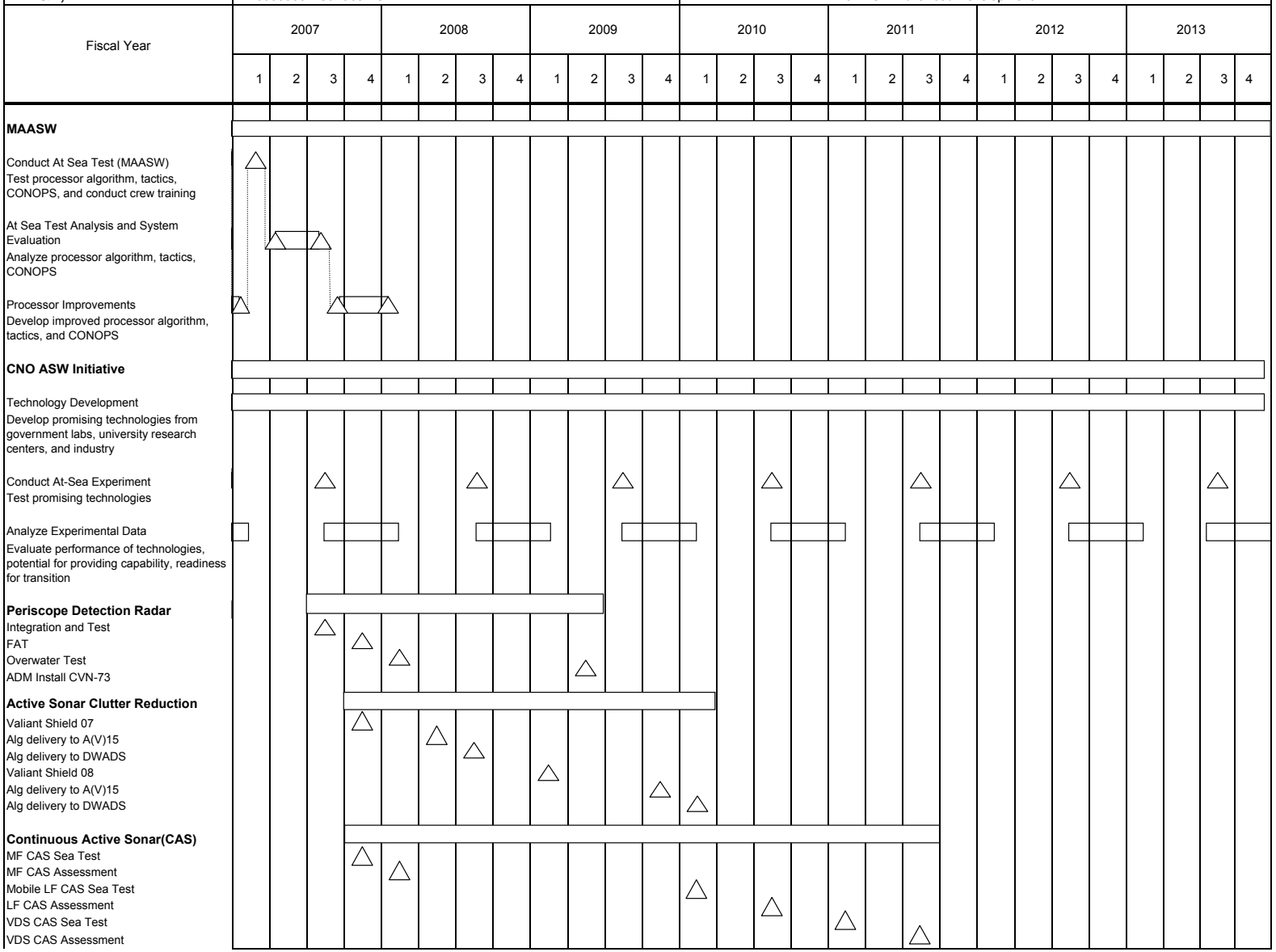
FY07 - Planned and conducted second CNO ASW initiative experiment and planned third experiment to test promising innovative ASW technologies, including both industry and University Affiliated Research Center (UARC) proposed technologies. Continued strategic investment in the most promising transformational technologies derived from an previous solicitation. FY08-09 plans include continued development and procurement of specific innovative technologies, such as Periscope Detection Radar (PDR), active sonar clutter reduction, continuous active sonar, and development of new acoustic, non-acoustic, and off-board sensors; procurement of reusable test assets for specific technology concepts; continued investment in developing and testing the highest potential technology concepts through the establishment of a spiral development process for surface sonar; and conducting independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies .

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**					PROJECT NUMBER AND NAME **1704/Undersea Warfare**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Multi-Static Sonar Development	WR	NUWC/Newport, RI	0.199	1.325	DEC-06	0.000		0.000		0.000	1.524	0.000
Multi-Static Sonar Development	C/CPFF	AAC, NY	0.000	0.067	DEC-06	0.000		0.000		0.000	0.067	0.000
Multi-Static Sonar Development	WR	NAWC/Patuxent River, MD	0.230	0.000	DEC-06	0.000		0.000		0.000	0.230	0.000
Multi-Static Sonar Development	C/CPFF	Adaptive Methods, VA	0.218	0.785	NOV-06	0.000		0.000		0.000	1.003	0.000
Multi-Static Sonar Development	C/CPFF	JHU/APL, MD	0.000	0.017	DEC-06	0.000		0.000		0.000	0.017	0.000
Multi-Static Sonar Development	WR	SPAWAR/San Diego, CA	0.255	0.286	JAN-07	0.000		0.000		0.000	0.541	0.000
Subtotal Product Development			**0.902**	**2.480**		**0.000**		**0.000**		**0.000**	**3.382**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Developmental Test & Evaluation	WR	NUWC/Newport, RI	0.206	3.266	NOV-06	0.000		0.000		0.000	3.472	0.000
Developmental Test & Evaluation	WR	NAWC/Patuxent River, MD	0.173	0.170	NOV-06	0.000		0.000		0.000	0.343	0.000
Developmental Test & Evaluation	C/CPFF	BBN, VA	0.250	0.000		0.000		0.000		0.000	0.250	0.000
Developmental Test & Evaluation	C/CPFF	AAC, NY	0.000	1.067	DEC-06	0.000		0.000		0.000	1.067	0.000
Developmental Test & Evaluation	WR	NUWC/Keyport, WA	0.000	0.259	OCT-06	0.260	JAN-08	0.260	OCT-08	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NSWC/Dahlgren, VA	0.000	0.265	DEC-06	0.100	JAN-08	0.000		0.000	0.365	0.000
Developmental Test & Evaluation	C/CPFF	UT/ARL, TX	0.000	1.844	NOV-06	2.000	JAN-08	3.847	DEC-08	CONT	CONT	0.000
Developmental Test & Evaluation	C/CPFF	Progeny, Inc., VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Developmental Test & Evaluation	MIPR	U.S. ARMY/MITRE, MA	0.000	0.060	DEC-06	0.200	JAN-08	0.200	DEC-08	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NRL, DC	0.000	0.537	DEC-06	0.505	OCT-07	0.000		0.000	1.042	0.000
Developmental Test & Evaluation	WR	NSWC/Carderock, MD	0.000	0.672	DEC-06	0.672	OCT-07	0.680	OCT-08	CONT	CONT	0.000
Developmental Test & Evaluation	WR	NSMA, VA	0.000	0.907	DEC-06	0.000		0.000		0.000	0.907	0.000
Subtotal Test and Evaluation			**0.629**	**9.047**		**3.737**		**4.987**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	C/CPAF	BAE SYSTEMS, MD	0.000	0.711	DEC-06	0.875	NOV-07	0.880	DEC-08	CONT	CONT	0.000
Program Management Support	C/CPFF	Stanley and Associates, VA	0.350	0.000		0.000		0.000		0.000	0.350	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**					PROJECT NUMBER AND NAME **1704/Undersea Warfare**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Travel	WR	NAVSEA PEO IWS 5, DC	0.050	0.050	OCT-06	0.050	OCT-07	0.050	OCT-08	CONT	CONT	0.000
Subtotal Management Services			**0.400**	**0.761**		**0.925**		**0.930**		**CONT**	**CONT**	**0.000**
Remarks:												
At-Sea Test/Experiment (CNO ASW Initiative)	C/CPFF	JHU/APL, MD	5.300	3.833	OCT-06	9.000	DEC-07	0.000		CONT	CONT	0.000
At-Sea Test/Experiment	WR	NUWC/Newport, RI	8.600	3.989	OCT-06	7.951	DEC-07	10.983	OCT-08	CONT	CONT	0.000
At-Sea Test/Experiment	WR	ONR/Alion Sciences, VA	0.000	0.000		0.000		0.000		0.000	0.000	0.000
At-Sea Test/Experiment	WR	ONR/3 Phoenix, VA	5.000	0.500	DEC-06	2.700	JAN-08	0.000		0.000	8.200	0.000
Enhanced Data Collection (SSEMP)	C/CPFF	JHU/APL, MD	2.462	2.000	OCT-06	0.000		9.185	DEC-08	CONT	CONT	0.000
Enhanced Data Collection (SSEMP)	C/CPFF	UT/ARL, TX	1.000	1.000	DEC-06	0.000		0.000		CONT	CONT	0.000
Technology Development	C/CPFF	Northrop Grumman Corp., VA	2.528	2.156	DEC-06	0.600	JAN-08	0.000		0.000	5.284	0.000
Technology Development	C/CPFF	Adaptive Methods, VA	0.000	0.985	DEC-07	0.100	JAN-08	0.989	DEC-08	CONT	CONT	0.000
Technology Development	C/CPFF	AAC, NY	0.000	1.067	DEC-07	0.000		0.000		0.000	1.067	0.000
Technology Development	C/CPFF	Alion Sciences, VA	0.000	0.000		0.000		2.500	DEC-08	CONT	CONT	0.000
Subtotal AT-SEA TEST			**24.890**	**15.530**		**20.351**		**23.657**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**26.821**	**27.818**		**25.013**		**29.574**		**CONT**	**CONT**	**0.000**

EXHIBIT R4, Schedule Profile | DATE: February 2008

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	PE 0603553N Surface ASW	1704 ASW Advanced Development



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

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**			PROJECT NUMBER AND NAME **1704/Undersea Warfare**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Multi-Static Active ASW (MAASW) Program:							
Conduct At-Sea Test MAASW	1Q						
At-Sea Test Analysis and System Evaluation	2Q-3Q						
Processor Improvements	1Q 3Q-4Q	1Q					
CNO ASW Initiative							
Technology Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Conduct At-Sea Experiment (Test promising technologies)	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Analyze Experimental Data	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q	1Q 3Q-4Q
Periscope Detection Radar Program:							
Integration and Test	3Q						
Factory Acceptance Test	4Q						
Over Water Test		1Q					
ADM Install on CVN-73			2Q				
Active Sonar Clutter Reduction Program:							
Valiant Shield 07	4Q						
Algorithm Delivery to AN/SQQ-89A(V)15		2Q					
Algorithm Delivery to DWADS		3Q					
Valiant Shield 08			1Q				
Algorithm Delivery to AN/SQQ-89A(V)15			4Q				
Algorithm Delivery to DWADS				1Q			
Continuous Active Sonar (CAS) Program:							
MF CAS Sea Test	4Q						
MF CAS Assessment		1Q					
Mobile LF CAS Sea Test				1Q			
LF CAS Assessment				3Q			
VDS CAS Sea Test					1Q		
VDS CAS Assessment					3Q		

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9185C/Improved Surface Vessel Torpedo Launcher	1.345	1.590	0.000
RDT&E Articles Quantity	0	0	0

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 war fighting capability; increase in operational readiness: improved personnel safety; and reduced life cycle costs on both existing and future ships.

	FY 2007	FY 2008	FY 2009
9809C/Automated Readiness Measurement System (ARMS)	1.752	0.000	0.000
RDT&E Articles Quantity	0	0	0

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 each build.

	FY 2007	FY 2008	FY 2009
9984N/Advanced Receive While Transmit Sonar	0.971	0.000	0.000
RDT&E Articles Quantity	0	0	0

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.

	FY 2007	FY 2008	FY 2009
9985N/All Electric Torpedo Launcher	1.295	0.000	0.000
RDT&E Articles Quantity	0	0	0

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.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603553N/SURFACE ASW**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

	FY 2007	FY 2008	FY 2009
9999/Small Business Technology Insertion	0.000	19.872	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to implement the cost-effective advantages gained through the Acoustic Rapid Commercial Off-The-Shelf Insertion/Advanced Processor Build Program (ARCI/APB) within the submarine community concept in other acquisition programs. Cost effective gains include, modularity, rapid technology insertion, software re-use, improved manufacturing processes, and cost reductions. Navy Open Architecture (OA) doctrine calls for a standard-based, middleware solution to be used for data communication. Funds will be used to encourage the use of virtualization that will allow disparate systems to co-exist on a single computer, thus allowing shipboard computer rooms/processing centers to be smaller in size, consume less power, and provide more processing capability in a more efficient and effective way.