CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2005**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**			R-1 ITEM NOMENCLATURE 0603513N/Shipboard System Component Development					
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	**35.425**	**45.254**	**22.150**	**16.420**	**19.271**	**19.535**	**19.780**	**19.942**
2465/DC/Survivability	**5.965**	**6.082**	**4.265**	**2.127**	**2.120**	**2.146**	**2.181**	**2.205**
2468/Undersea Warfare (USW)	**1.521**	**1.653**	**3.448**	**1.473**	**0.000**	**0.000**	**0.000**	**0.000**
2469/ Open Systems Architecture (OSA)	**3.420**	**3.430**	**2.512**	**1.997**	**2.038**	**2.072**	**2.116**	**2.156**
2470/Integrated Topside Design (ITD)	**3.475**	**3.554**	**2.691**	**0.535**	**0.519**	**0.523**	**0.534**	**0.538**
2471/Integrated Power Systems (IPS)	**4.968**	**4.091**	**9.234**	**8.496**	**7.597**	**7.651**	**7.655**	**7.598**
2858/MTTC/IPI	**8.653**	**5.942**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
4019/Radar Upgrades	**0.000**	**0.000**	**0.000**	**1.792**	**6.997**	**7.143**	**7.294**	**7.445**
9038/Automated Maintenance Environment	**2.322**	**2.575**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9183/Electro-Magnetic Launcher	**0.967**	**1.485**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9185/Airbag Technology	**1.482**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9350/Circuit Breakers	**0.961**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9351/Power & Propulsion Technologies	**1.691**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9517/Amorphous Metal Permanent Magnet Gen Set	**0.000**	**1.485**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9518/Carbon Foam	**0.000**	**4.160**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9519/ DDX Ship Systems Power Electronics Tech	**0.000**	**1.388**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9520/Galley Food Waste Disposal System	**0.000**	**0.991**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9521/Intelligent Systems Consortium Initiative	**0.000**	**1.485**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9522/Shipboard Personal Locator Beacon	**0.000**	**2.278**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9523/Shipboard Use of Alt Composition Pipes	**0.000**	**1.684**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9524/Shipboard Wireless Maintenance Assistant	**0.000**	**2.971**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**	R-1 ITEM NOMENCLATURE 0603513N/Shipboard System Component Development

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE funds the development of shipboard system components and technologies for the future surface combatant family of ships and focuses on the following efforts: (1) development of DD(X) specific and future surface combatant survivability and damage control/firefighting systems and features that reduce vulnerability against weapons, (2) demonstration and validation of technology through build-test-build process for surface sonar and combat system application, (3) implements modular standard open systems architecture at the total ship/system level and supports reduced manning efforts through automation, (4) develops technologies to achieve a total integrated topside design focused on DD(X) and other future surface ships, (5) supports the Integrated Power System effort that provides total ship electric power, including electric propulsion, power conversion and distribution, combat system and mission load interfaces to the electric power system and (6) future upgrades/technology insertion efforts for the Dual Band Radar (DBR) system.

The following FY 2004-2005 Congressional adds, identified in separate projects on the R-2, are contained in this Program Element:

-**McConnell Technology Transition Center/Innovative Productivity, Inc (MTTC/IPI).** Funds studies that allow the Navy, DoD, government, laboratories, universities, and industry to identify innovative technologies, processes and concepts that can help Navy activities and contractors, while reducing operating costs and increasing product quality. Incorporated into MTTC/IPI is the Center of Excellence for Naval Propulsors which funds the development of casting and manufacturing improvements for large Navy propellers and propulsors.
-**Automated Maintenance Environment (AME).** Effort focuses on connecting ships in a battle group with a shore-based facility for routing to support services.
-**Electro-Magnetic Launcher (EML).** Demonstrates the feasibility of a kinetic energy electromagnetic rail gun.
-**Airbag Technology.** Focuses on the development and evaluation of replacing the current high-pressure air system used to launch over-the-side torpedoes with commercial off the shelf automobile air bag inflators for launch energy.
-Circuit Breakers. Funds the development and qualification of a second source for Navy AQB-type circuit breakers with root-mean-square (RMS) current sensing electronic trip units and remote communication capability.
-Power and Propulsion Technologies. Conducts modeling and simulation in some additional areas of Navy interest and is linked to the Integrated Fight Through Power (IFTP) concept. Additionally, funds will be applied to enhanced risk reduction efforts associated with survivable Integrated Power System (IPS) architectures.
-**Amorphous Metal Permanent Magnet Generator.** Funds conceptual and preliminary designs of an Amorphous Metal Permanent Magnet Generator Set.
-**Carbon Foam.** Funds to explore uses for lightweight, strong, fire resistant and thermally insulating carbon foam material aboard Navy ships.
-**DD(X) Ship System Power Electronics Technology.** Funds development and demonstration of high power switch and conversion equipment technology, manufacturing methods and processes.
-**Galley Food Waste Disposal System.** Develops new pollution control equipment and systems that will enable Navy compliance with environmental regulations and other identified issues for disposal of shipboard food waste.
-**Intelligent Systems Consortium (ISC).** This effort focuses on the development of intelligent shipboard electro-mechanical devices in support of the Navy's all-electric ship concept, reduces manning requirements and future sea basing needs.
-**Shipboard use of Alternative Composition Pipes.** Facilitates the testing, evaluation and certification of alternative composition low-cost piping for use in Navy ships.
-**Shipboard Wireless Maintenance Assistant (SWMA).** Funds the continued development of an integrated, wireless collaboration tool for Navy ship organizational maintenance personnel.
-Shipboard Personal Locator Beacon. Funds the development and demonstration of a method by which to monitor the location of individual sailors throughout a ship.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2005**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**5.965**	**6.082**	**4.265**	**2.127**	**2.120**	**2.146**	**2.181**	**2.205**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds development of DD(X) specific and future surface combatant survivability and damage control (DC)/ firefighting systems and features that reduce vulnerability against weapons (e.g., missiles, mines, torpedoes) and enables effective recovery of mission capability under reduced manning conditions. Additionally, this project supports development of systems that reduce susceptibility to magnetic and acoustic influence mines. The requirements for this project are based on the need to develop affordable, balanced survivability designs that address recent wartime lessons learned and emerging and future threats.

(U) System development areas include: 1) automated degaussing control system that maintains a reduced, constant electromagnetic signature level for an extended deployment and provides on-board, real-time, tactical information on safe operating areas; 2) underwater explosion, shock isolation systems that use rafting and advanced mounts to provide increased survivability while operating in littoral environments; 3) ship design modeling and simulation program that predicts the vulnerability and recoverability response time of the ship, systems, and crew to primary and secondary weapons effects 4) advanced DC and auxiliary system architectures and control methods that enable automated isolation, reconfiguration and fire suppression actions after damage; and 5) low cost ship shock testing methods that eliminate the need for costly environmental assessments and at-sea measures.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.064	1.000	1.440	0.800
RDT&E Articles Quantity	0	0	0	0

(U) In FY 04, conducted tests to determine the fault susceptibility of 13.8 KV switch gear to water mist; developed switch gear control system doctrine that defines if power must be secured prior to activation of the water mist fire suppression system. In FY 04 through FY 07, develop fault isolation control system approaches for 13.8KV electrical systems that prevent peacetime arcing faults within switchgear and approaches for rapidly isolating bus level combat induced faults; identify fault isolation approaches and initiate live ordance testing in FY 04. Continue live ordnance testing in FY 05 though FY 06 and finalize control system approach in FY07.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.664	1.300	0.732	0.502
RDT&E Articles Quantity	0	0	0	0

(U) In FY 04 through FY 05, develop survivable control system architectures that provide a cost effective, redundant communications path after blast or fire damage to the network; in FY 04 developed a control system platform for demonstrating the performance of alternative computing architectures. In FY 06 and FY 07 complete testing and transition to the DD(X) program.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.700	0.843	0.300	0.000
RDT&E Articles Quantity	0	0	0	0

(U) In FY 04, conducted an underwater explosion shock test employing a raft, prototype shock mount and representative electronic equipment to demonstrate equipment survivability . For FY 05, develop low-cost, portable shock testing devices for rapidly shock qualifying commercial off the shelf (COTS) equipment; initiate demonstrations on the ability of the devices to replicate the shock environment and conduct tests using representative COTS equipment. In FY 06 complete demonstations and transition to acquisition programs.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

B. Accomplishments/Planned Program (Cont.)

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.415	1.769	1.793	0.825
RDT&E Articles Quantity	0	0	0	0

(U) In FY 04, completed closed loop degaussing system rangings to monitor stability of control algorithm/ system aboard the USS HIGGINS, DDG 76. For FY 04 through FY 07, develop a software upgrade for the closed loop degaussing system that provides for a low signature during ship rolling conditions by compensating for eddy currents ; developed control algortithm and initiated scaled model testing in FY 04. Conduct full scale rangings in FY 05 through FY 07.

For FY 04 through FY 06, develop a real-time tactical decision aid that provides safe operating areas as a function of mine threat ; initiated coding in FY 04. Complete prototype code development in FY 05 and conduct fleet evaluation in FY 06.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.822	0.570	0.000	0.000
RDT&E Articles Quantity	0	0	0	0

(U) In FY 04 conducted verification and validation and developed new weapons effect and recoverability models. In FY 05 complete development and transition to acquisition programs.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.300	0.600	0.000	0.000
RDT&E Articles Quantity	0	0	0	0

(U) For FY 04 developed a conceptual environmentally safe shock testing approach for conducting at-sea, or pier side ship shock trials that eliminate the need for costly environmental impact assessments and at-sea measures; conducted scaled demonstrations tests including use of innovative approaches for focusing the energy from conventional explosives in one direction. For FY 05, complete testing and transition of environmentally safe shock testing.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

C. (U) PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	6.443	6.142	4.032	1.952
FY 2006 President's Budget	5.965	6.082	4.265	2.127
Total Adjustments	-0.478	-0.060	0.233	0.175
(U)Summary of Adjustments				
Congressional undistributed reductions	-0.072	-0.059		
Miscellaneous Minor Adjustments	-0.406	-0.001	0.233	0.175
Subtotal	-0.478	-0.060	0.233	0.175

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost	To Complete
PE 0604300N/ DD(X) Total Ship Sys Engineering	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U) MAJOR PERFORMERS:

(U) Government Field Activities - Naval Surface Warfare Center, Carderock, Md.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2005**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPAF	DD(X) Design Agent	1.500	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.500	
Ancillary Hardware Development														
Product Development	WX	NSWC CD Bethesda, MD	12.411	5.790	12/03	6.082	12/04	4.215	12/05	2.077	12/06	CONT	CONT	
	Various	Other Contractors	5.251	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Ship Integration														
Ship Suitability														
Systems Engineering														
Training Development														
Licenses														
Tooling														
GFE														
Award Fees														
Subtotal Product Development			19.162	5.790		6.082		4.215		2.077		CONT	CONT	
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:														

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 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	GSA/FFP	Anteon Arlington, VA	0.234	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.234	
	C/TBD	Seaport, NAVSEA	0.000	0.000	N/A	0.000	N/A	0.050	12/05	0.050	12/06	CONT	CONT	
Government Engineering Support	VAR	Othe Gov't Activities	0.590	0.175	Various	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Program Management Support	WX	NSWC CD Bethesda, MD	0.075	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.075	
Travel														
Labor (Research Personnel)	CPFF	Various	0.121	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
SBIR Assessment														
Subtotal Management			1.020	0.175		0.000		0.050		0.050		CONT	CONT	
Remarks:														
Total Cost			20.182	5.965		6.082		4.265		2.127		CONT	CONT	
Remarks:														

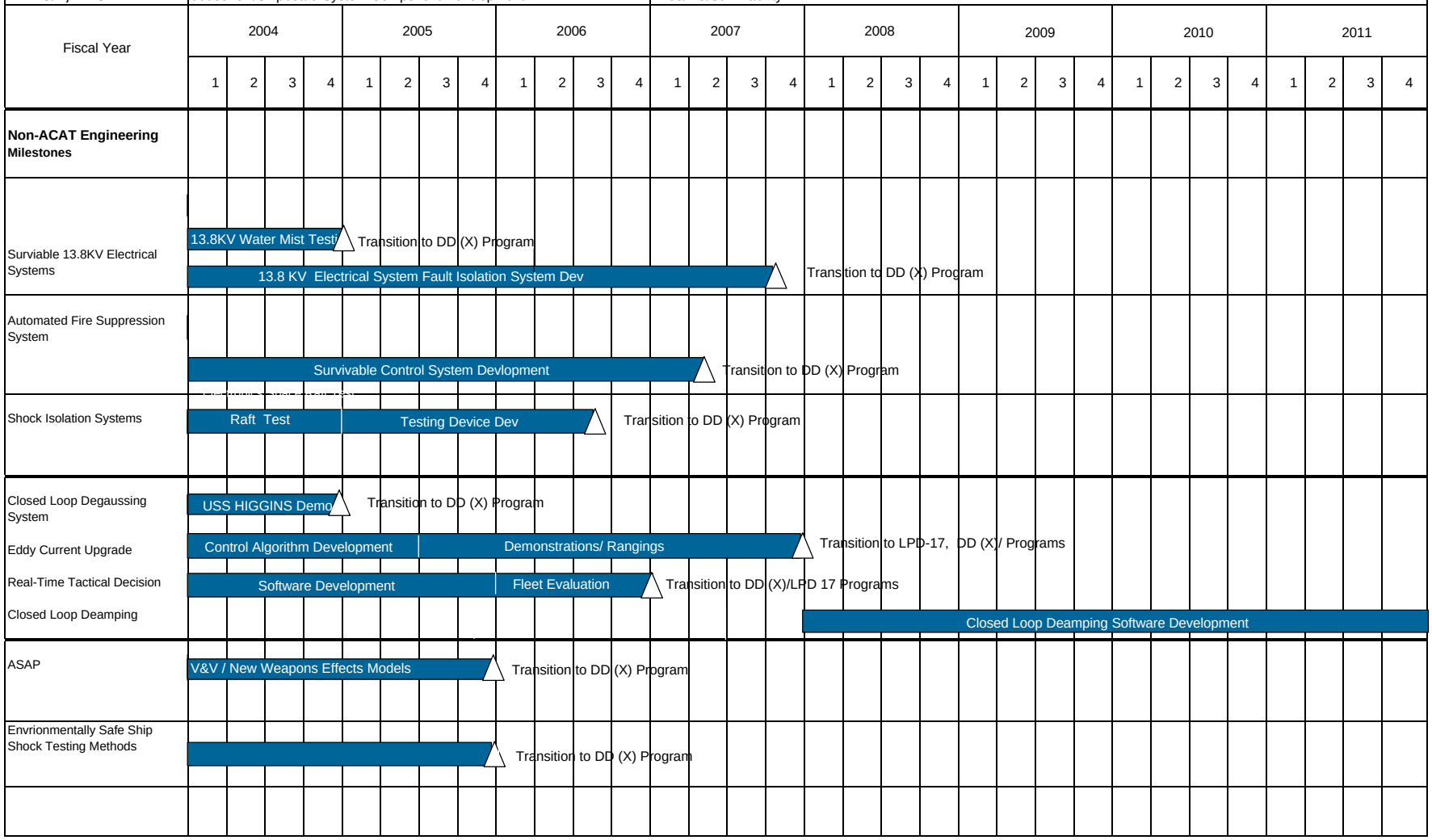
R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: **February 2005**

APPROPRIATION/BUDGET /	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2465/DC/Survivability



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2005**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
13.8KV Water Mist Tests	4Q							
13.8KV Peactime Fault Isolation Approaches	2Q							
13.8KV Fault Characterization Tests		2Q						
13.8 KV Bus Level Fault Isolation Approaches		2Q						
13.8KV Bus Level Fault Testing		4Q	3Q					
13.8 KV Conrol System Approaches				3Q				
Control System Demonstration Platform	4Q							
Survivable Control System Software	4Q	2Q						
Survivable Control System Testing		3Q	4Q	2Q				
Electronics Space Raft Test	4Q							
Low Cost COTS Qualification Test Devices		4Q						
Low Cost COTS Qualification Test Demonstrations			3Q					
Closed Loop Degaussing Rangings	2Q-4Q							
Eddy Current Compensation Control Algorithm	3Q							
Eddy Current Demonstrations		4Q	4Q	4Q				
Tactical Decision Aid Requirements	3Q							
Tactical Decision Aid Prototype Code		4Q						
Tactical Decision Aid Fleet Evaluation			4Q					
De-Amping System Prototype Design						4Q		
De-Amping System Control Algorithm								4Q
ASAP V&V	4Q							
ASAP Recoverability/ New Weapons Effects models		4Q						
Alternative Shock Test Method Scale Demonstrations	4Q							
Environmental Test Method Transition		4Q						

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**1.521**	**1.653**	**3.448**	**1.473**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

The Undersea Warfare (USW) project provides advanced development demonstration and validation of technology through a build-test-build process for potential surface sonar and combat system application. Efforts focus on resolution of technical issues associated with providing capability against the year 2010 and beyond threat with emphasis on shallow water/littoral area USW and on Demonstration and Validation (DEM/VAL) of DD(X) Integrated Undersea Warfare (IUSW-21) Advanced Development Model (ADM). The key technology areas being investigated include: (1) improvements in signal processing, (2) advanced information processing, (3) multi-sensor data fusion, (4) towed array technology, (5) hull array technology and (6) transducer technology to improve target detection and classification performance and reduce system manning requirements for anti-submarine, torpedo defense and in-stride mine avoidance. Current and future efforts focus on major technological and performance thrusts for DD(X) USW, which will define surface combatant USW capability for the Navy in the next century. These efforts will continue beyond DD(X) and provide improvements that apply across surface ship USW platforms.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.434	0.464	0.803	0.128
RDT&E Articles Quantity	0	0	0	0

(U) IUSW-21 Risk reduction contracts/tasks - For FY04, continued risk reduction tasks to further define advanced information processing and completed integration of risk reduction into the ADM/EDM to support the build-test-build process and the FY05 sea tests. In FY05, execute risk reduction tasks into the ADM to support the build-test-build process and the FY07 sea tests. FY06, continue evaluation and qualification of risk reduction technologies for incorporation into FY07 sea tests. In FY07, continue executing risk reduction tasks in support of build-test-build process and FY07 sea tests.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.772	0.815	1.959	0.590
RDT&E Articles Quantity	0	0	0	0

(U) IUSW-21 ADM/EDM Development - Performed Integrated Peer Group (IPG) engineering reviews of IUWS-21 advanced technologies. In FY04, continued IPT (IPT) engineering reviews of IUSW-21 advanced technologies. Completed the development and integration of IUSW-21 advanced technologies into ADM/EDM demonstration system for FY05 sea tests. In FY05, complete the development and integration of IUSW-21 advanced technologies into ADM/EDM demonstration system for FY05 sea tests and continue performing IPT engineering reviews of IUSW-21 advanced technologies in support of the FY07 sea tests. In FY06, develop and integrate IUSW and Peer Review advanced technologies into ADM/EDM demonstration system for FY07 sea testing. In FY07, complete the development and integration of candidate techologies for FY07 sea test.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.315	0.374	0.686	0.755
RDT&E Articles Quantity	0	0	0	0

(U) In FY04, procured equipment for FY05 sea tests. In FY 05, complete equipment preparation for FY05 sea test. Ship and install equipment, conduct FY05 sea tests and collect data. In FY06, procure and prepare equipment for FY07 sea tests. In FY07, complete equipment preparation for FY07 sea test, ship and install equipment, and conduct FY07 sea tests including data collection and analysis.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare

C. (U)PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	1.419	1.669	4.178	1.976
FY 2006 President's Budget	1.521	1.653	3.448	1.473
Total Adjustments	0.102	-0.016	-0.730	-0.503
(U)Summary of Adjustments				
Congressional undistributed reductions	-0.016	-0.016		
SBIR/STTR Transfer	-0.013			
Other Adjustments	0.131	0.000	-0.730	-0.503
Subtotal	0.102	-0.016	-0.730	-0.503

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerir	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. (U) ACQUISITION STRATEGY:

(U) In Contracting Phase I and II, DD(X) used Section 845/804 agreement authority for the efforts conducted by the DD(X) Industry Teams. BAAs were competitively awarded to further refine advanced information processing for automated detect classify and localize, data fusion, automated environmental adaptation, mine avoidance, torpedo defense, and displays for reduced manning to provide further risk mitigation for DD(X) USW activities. In Contract Phase III responsibility for IUSW-21 ADM/EDM development for the FY04 and FY05 sea tests will be with the DD(X) Design Agent.

F. (U)MAJOR PERFORMERS:

(U) DD(X) Design Agent-Ingalls Shipbuilding Inc (ISI)
(U) Field Activities - Naval Undersea Warfare Center, Newport, Ri .

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2005**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2468/Undersea Warfare									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	11.104	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.104	
	CPAF	DD(X) Design Agent	8.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.000	
	BAA/CPFF	Competition	14.776	0.374	Various	0.000	N/A	0.343	Various	0.178	Various	CONT	CONT	
Ancillary Hardware Development														
Systems Engineering	C/CPFF	LMC, Syracuse, NY	0.813	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.400	0.060	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	C/CPFF	RSC, Newport, RI	0.827	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Licenses	BAA/CPFF	Competition	0.000	0.000	N/A	0.000	N/A	0.735	Various	0.242	Various	CONT	CONT	
Tooling														
GFE														
Award Fees														
Subtotal Product Development			35.920	0.434		0.000		1.078		0.420		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development	C/CPFF	LMC, Syracuse, NY	11.589	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	C/CPFF	RSC, Newport, RI	10.316	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.750	0.000	N/A	0.464	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD(X) Design Agent	6.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Training Development	BAA/CPFF	Competition	0.000	0.000	N/A	0.000	N/A	1.371	Various	0.440	Various	CONT	CONT	
Integrated Logistics Support														
Configuration Management														
GFE														
Award Fees														
Subtotal Support			28.655	0.000		0.464		1.371		0.440		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**
PROGRAM ELEMENT: 0603513N/Shipboard System Component Development
PROJECT NUMBER AND NAME: 2468/Undersea Warfare

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NUWC/N Newport, RI	7.837	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	SS/CPFF	APL/JHU Laurel, MD	1.430	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD(X) Design Agent	1.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.000	0.370	Various	0.366	Various	0.655	Various	0.295	Various	CONT	CONT	
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			10.267	0.370		0.366		0.655		0.295		CONT	CONT	

Remarks:

Contractor Engineering Support	various	Other Contractors	2.324	0.170	1QFY04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.543	
Government Engineering Support	WX	Other Gov't Activities	8.008	0.547	1QFY04	0.823	1QFY05	0.344	1QFY06	0.318	1QFY07	CONT	CONT	
	SS/CPFF	Various	2.355	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Program Management Support	PD/WX	Other Gov't Activities	0.290	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			12.977	0.717		0.823		0.344		0.318		CONT	CONT	

Remarks:

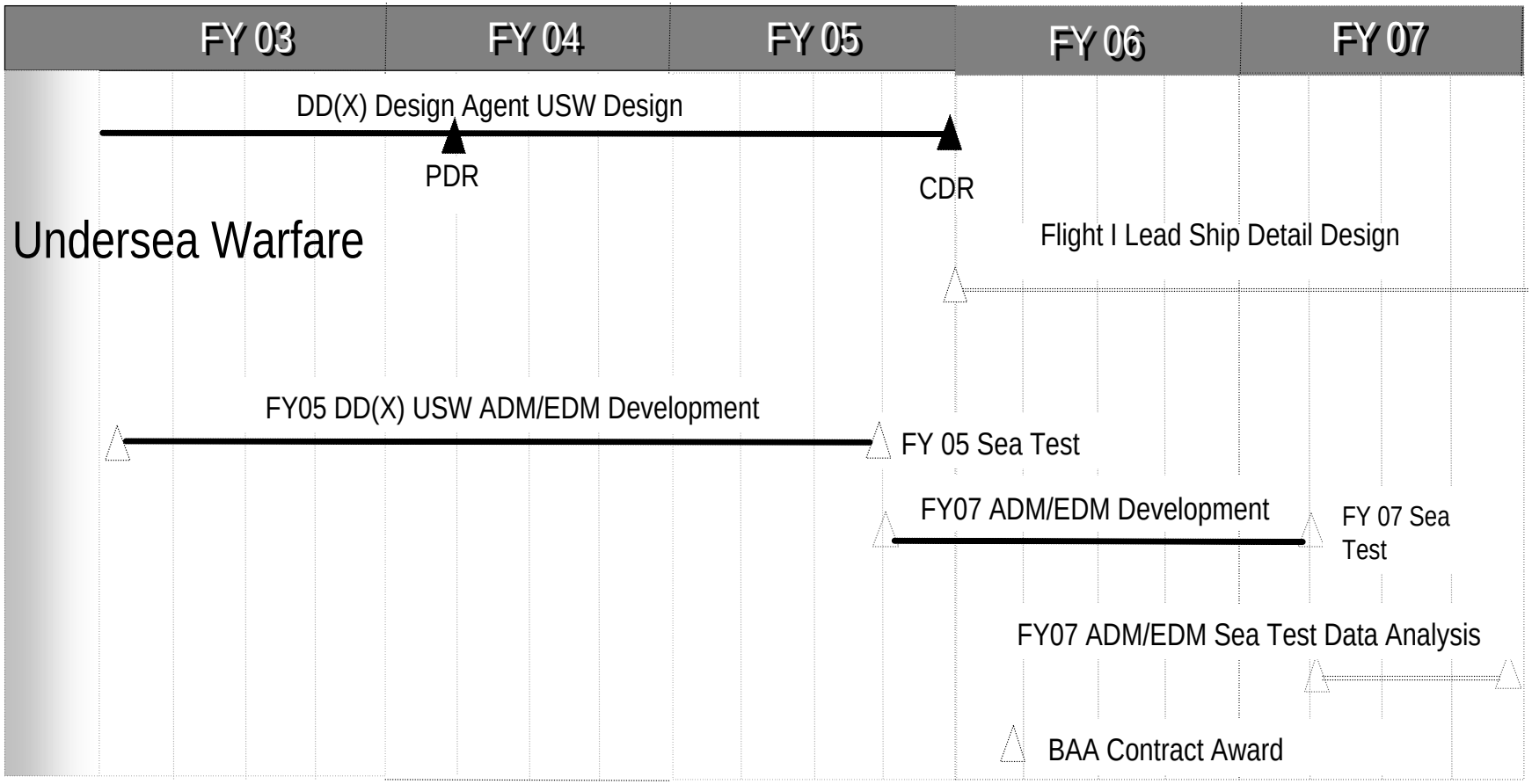
Total Cost			87.819	1.521		1.653		3.448		1.473		CONT	CONT	

Remarks:

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2468/Undersea Warfare



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2005**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
DD(X) Preliminary Design Review (PDR)	2Q-4Q							
FY05 DD(X) USW ADM/EDM Development/Integration	1Q-4Q	1Q-3Q						
FY05 DD(X) USW ADM/EDM Sea Tests		3Q						
DD(X) Critical Design Review (CDR)		4Q						
FY07 ADM/EDM Development		4Q	1Q-4Q	1Q				
BAA Contract Award			1Q					
FY07 ADM/EDM Sea Test				2Q				
FY07 ADM/EDM Sea Test Data Analysis				2Q-4Q				

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**3.420**	**3.430**	**2.512**	**1.997**	**2.038**	**2.072**	**2.116**	**2.156**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The following provides a mission description for each major development area (i.e., Fleet-Focused Initiative (FFI) and Open Systems Architecture (OSA):

(U) Fleet-Focused Initiative: For existing and future ships, this funding: 1) improves reliability/maintainability of fluid, electrical, and mechanical systems and 2) supports reduced manning through automation of operational, maintenance, and day-to-day functions traditionally performed by the crew, and supports development of auxiliary systems to reduce ship magnetic signature and vulnerability to mines.

(U) Architectures, Interfaces & Modular Systems (AIMS): This funding supports PEO Ships implementation of modular standard open systems architecture (OSA) at the total system/ship level. These modular interfaces facilitate mission and market adaptability, technology refresh and insertion, and competition. This funding supports the market surveillance and technology and other projections, cost and logistics analyses, process development, industry partnering, demonstrations and assessments necessary to translate into total ship acquisition.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.960	0.963	0.620	0.000
RDT&E Articles Quantity	0	0	0	0

(U) Common Family of Ships (FOS) Business/Technical Architecture and Technology Management: FY04: Drafted architecture for common FOS AIMS. FY05-06: Business Case/Architecture for common modular systems and standard interfaces.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.280	2.467	1.892	1.997
RDT&E Articles Quantity	0	0	0	0

(U) Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.
A. FY04-1QFY05: Command and Control Zone Architecture development, FY05: Command and Control Zone Interface development.
The following effort is a subset of the C&C Zone:
1. Open C4I Zone: FY04 HVAC Implementation (completed 4Q FY04)
2. Supply, Maintenance and Monitoring Open Architecture (SMMOA) Interfaces: FY04: Interface concept developed, FY05: Interface development.
B. Open Offboard Vehicle Zone, FY04: Architecture developed, FY05-07: Interfaces.
C. Open Weapons/Power Projection Zone: FY04-05: Architecture development, FY06-07: Interface development
D. Open Sensors Zone: FY06-FY07 Concept development.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.180	0.000	0.000	0.000
RDT&E Articles Quantity	0	0	0	0

(U) Fleet-Focused Initiatives - TOC Initiatives - Continued development of improved fuel system training that reduced sailor workload for the existing fleet. Completed efforts to improve fuel system training that reduce's workload for the existing fleet and issued final report.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)

C. (U) PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	3.723	3.463	2.520	2.013
FY 2006 President's Budget	3.420	3.430	2.512	1.997
Total Adjustments	-0.303	-0.033	-0.008	-0.016
(U)Summary of Adjustments				
Congressional undistributed reductions	-0.042	-0.032		
SBIR/STTR Transfer	-0.029			
Other Adjustments	-0.232	-0.001	-0.008	-0.016
Subtotal	-0.303	-0.033	-0.008	-0.016

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)	

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U)MAJOR PERFORMERS:

(U) Government Field Activities- Naval Surface Warfare Center, Carderock, Md. and Naval Surface Warfare Center, Dahlgren, Va.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	35.327	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	35.327	
	WX	NSWC CD Bethesda, MD	10.023	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	10.023	
	Various	Other Gov't Activities	4.987	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.987	
	Various	Other Contractors	2.735	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.735	
Ancillary Hardware Development													0.000	
Systems Engineering													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			53.072	0.000		0.000				0.000		0.000	53.072	
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:														

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

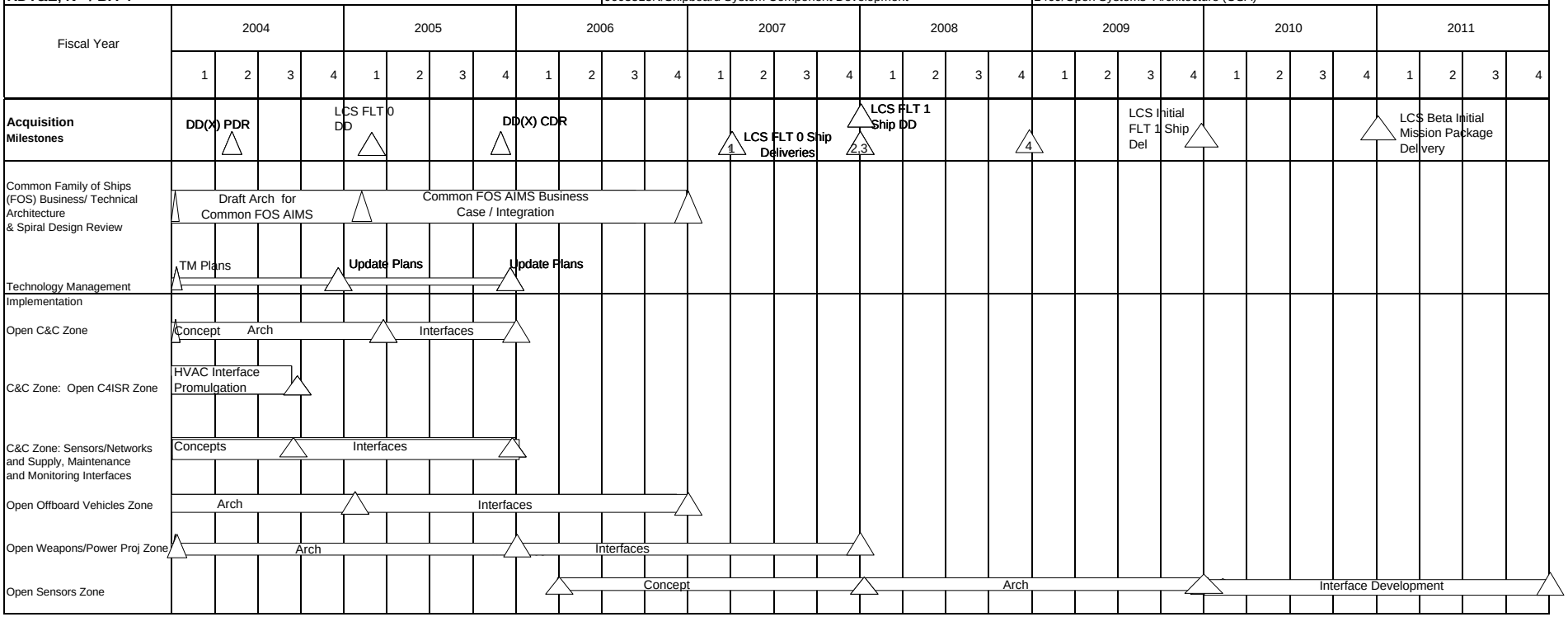
Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2005**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational 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	Various	Other Contractors	8.729	0.150	N/A	0.340	N/A	0.300	10/05	0.200	10/06	CONT	CONT	
Government Engineering Support	WX	NSWC CD Philadelphia, PA	3.763	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.763	
	WX	NSWC Carderock, Md.	0.000	2.287	10/03	2.380	10/04	1.212	10/05	0.000	10/06	CONT	CONT	
	Various	Other Gov't Activities	30.360	0.983	Various	0.710	Various	1.000	Various	1.797	Various	CONT	CONT	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			42.852	3.420		3.430		2.512		1.997		CONT	CONT	
Remarks:														
Total Cost			95.924	3.420		3.430		2.512		1.997		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)



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

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2005**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603513N Shipboard System Component Developmen				PROJECT NUMBER AND NAME 2469/ Open Systems Architecture (OSA)			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Business/Technical Architecture								
FOS SDR / Modularity Assessment complete								
Draft Architecture for Common FOS AIMS Complete		1Q						
Common FOS AIMS Modularity Integration Complete			4Q					
Technology Management:								
Initial Database Complete								
TM Plans Issues								
Update TM plans	4Q	4Q						
Implementation								
Open Command and Control Zone								
Open C&C Zone Concept Complete								
Open C&C Zone Architecture Complete		1Q						
Open C&C Zone Interfaces Defined			1Q					
Open C4I Zone Foundation Promulgation								
Open C4I Zone HVAC Interface Defined								
Open C4I Zone HVAC Implementation Complete	3Q							
Sensor/Networks and SMMOA Risk Reduction								
Sensor/Networks and SMMOA Interface Concepts Complete	4Q							
Sensor/Networks and SMMOA Interfaces Defined		3Q						
Open Offboard Vehicles Zone:								
Open Offboard Vehicles Zone Concept Complete								
Open Offboard Vehicles Zone Architecture Complete		1Q						
Open Offboard Vehicles Zone Interfaces Defined				1Q				
Open Weapons/Power Projection Zone:								
Open Weapons Zone Concept Complete								
Open Weapons Zone Arch Complete			1Q					
Open Weapons Zone Interfaces Defined					1Q			
Open Sensors Zone:								
Open Sensors Zone Concept Complete					1Q			
Open Sensors Zone Architecture Complete						4Q		
Open Sensors Zone Interfaces Defined								4Q

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**3.475**	**3.554**	**2.691**	**0.535**	**0.519**	**0.523**	**0.534**	**0.538**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops the necessary technologies to achieve a total integrated topside design focused on DD(X) and other future surface combatant ships as well as supporting upgrades to existing ships in the Fleet. Technology focus areas include the development, enhancement, validation and verification of modeling and simulation (M&S) tools to support topside signature control, electronic warfare effectiveness, and electromagnetic engineering. This project also develops technical data to support the use of large-scale marine composites on surface combatants to facilitate topside signature control. Topside signature control and electronic warfare effectiveness M&S tools supported by this project enable Navy transformation efforts related to sea strike by facilitating the cost effective design, design approval, and Live Fire Test and Evaluation of low signature surface ships. The validated, integrated, physics-based, electromagnetic radiation (VIPER) M&S tool suite currently being developed under this project will provide the Navy with a state-of-the-art electromatgnetic engineering (EME) capability that is applicable to both new construction and existing ships in the Fleet. By providing the design community with tools able to accurately predict the optimum arrangement of topside sensors to minimize electromagnetic interference (EMI), this project enables Navy transformation efforts by facilitating FORCEnet, the connection of sensors, networks, weapons, decision aids and warriors from seabed to space. Development of marine composite technical data supports Navy transformation efforts by enabling the cost effective design of stealthy surface ship topsides that have improved corrosion control which, in turn enables optimized manning. This program is directed toward improved affordability, performance, reduced life cycle cost, reliability and maintainability, signature reduction, standardization, and weight and manning reductions for the existing and future Fleet.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.465	1.512	1.120	0.230
RDT&E Articles Quantity	0	0	0	0

FY04: Completed V1.0 RF Coupling D&A M&S Tool; Released V11.1 RTS M&S Tool; Released V3.1 ShipIR M&S Tool.
FY 05: Complete validation of V1.0 RF Coupling D&A M&S Tool; Release V12.0 RTS M&S Tool; Release V3.2 ShipIR M&S Tool.
FY 06: Complete V2.0 RF Coupling D&A M&S Tool; Release V12.1 RTS M&S Tool; Release V3.3 ShipIR M&S Tool.
FY 07: Complete V3.0 RF Coupling D&A M&S Tool; Release V13. RTS M&S Tool; Release V3.4 ShipIR M&S Tool.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.471	1.465	1.131	0.223
RDT&E Articles Quantity	0	0	0	0

FY04: Released validated Ver 1.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Released validated Ver 1.0 Frequency Selective Surface D&A M&S Tool.
FY05 Release Ver 2.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Release V. 2.0 Frequency Selective Surface D&A M&S Tool.
FY06: Release Ver 3.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Release V. 3.0 Frequency Selective Surface D&A M&S Tool.
FY07: Release Ver 4.0 Advanced Antenna Design and Analysis (D&A) M&S Tool.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.539	0.577	0.440	0.082
RDT&E Articles Quantity	0	0	0	0

FY 04:Completed NAVSEA Tech Pub 278 for Non Destructive Inspection of Composite Ship Structure; Transitioned Non Destructive Inspection of Composite Ship Structure technical information to ABS Naval Vessel Rules; Completed Technical Report on Flaw Criticality and Inspection Criteria for Ship Composites, Completed Technical Report on Integral Joint Test and Analysis Results.
FY05: Complete Joint Design Failure Mapping Report; Complete Structural Design and Analysis of Ship Composite Topside Structure Report; Transition Structural Design and Analysis of Ship Composite Topside Structure Info to ABS Naval Vessel Rules; Transition Flaw Criticality and Inspection Criteria for Ship Composites Info to ABS Naval Vessel Rules.
FY06: Issue Revised Composites Joint Design Guide; Issue revised Fire safety rules and guidelines
FY07: Update Info for ABS Naval Vessel Rules.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

C.(U) PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	3.665	3.589	2.773	0.816
FY 2006 President's Budget	3.475	3.554	2.691	0.535
Total Adjustments	-0.190	-0.035	-0.082	-0.281
(U)Summary of Adjustments				
Congressional undistributed reductions	-0.041	-0.034		
Miscellaneous Minor Adjustments	-0.149	-0.001	-0.082	-0.281
Subtotal	-0.190	-0.035	-0.082	-0.281

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

D. (U)OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U) MAJOR PERFORMERS:

(U)Government Field Activities-Naval Research Laboratory, Washington DC, and Space and Naval Warfare Systems Center, San Diego, Ca.

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	24.556	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	24.556	
Ancillary Hardware Development													0.000	
Systems Engineering												0.000	0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			24.556	0.000		0.000		0.000		0.000		0.000	24.556	

Remarks:

Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	

Remarks:

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT: 0603513N/Shipboard System Component Development

PROJECT NUMBER AND NAME: 2470/Integrated Topside Design (ITD)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational 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	0.000	
Remarks:														
Contractor Engineering Support	GSA/FFP	Anteon Arlington, Va.	3.460	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.460	
	Various	Other Contractors	0.000	0.095	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Government Engineering Support	WX	NSWC CD Bethesda, MD	1.414	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	NRL, Washington DC	1.120	1.025	10/03	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	SSCSD, San Diego, CA	1.566	1.140	10/03	1.025	10/04	0.000	N/A	0.000	N/A	CONT	CONT	
	Various	Other Gov't Activities	23.652	1.215	Various	2.529	Various	2.691	Various	0.535	Various	CONT	CONT	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			31.212	3.475		3.554		2.691		0.535		CONT	CONT	
Remarks:														
Total Cost			55.768	3.475		3.554		2.691		0.535		CONT	CONT	
Remarks:														

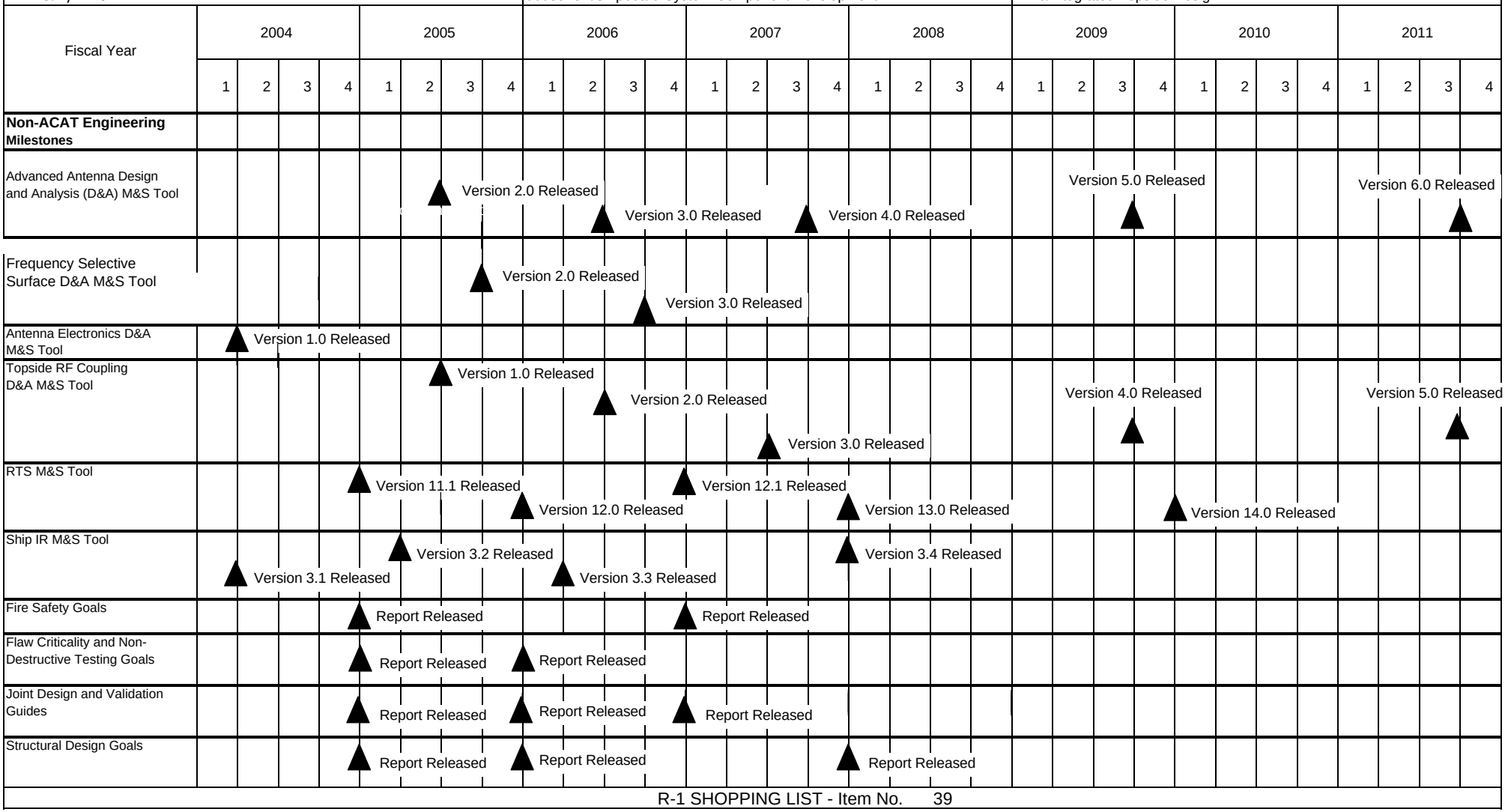
R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design



R-1 SHOPPING LIST - Item No. 39

Exhibit R-4a, Schedule Detail					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Electromagnetic Engineering								
Advanced Antenna Design and Analysis (D&A) M&S Tool								
Version 2.0 Released		2Q						
Version 3.0 Released			2Q					
Version 4.0 Released				3Q				
Version 5.0 Released						3Q		
Version 6.0 Released								3Q
Frequency Selective Surface D&A M&S Tool								
Version 2.0 Released		3Q						
Version 3.0 Released			3Q					
Antenna Electronics D&A M&S Tool								
Version 1.0 Released	1Q							
Topside RF Coupling D&A M&S Tool								
Version 1.0 Released		2Q						
Version 2.0 Released			2Q					
Version 3.0 Released				2Q				
Version 4.0 Released						3Q		
Version 5.0 Released								3Q
Electronic Warfare Effectiveness and Topside Signatures								
Radar Target Signature M&S Tool								
Version 11.1 Released	4Q							
Version 12.0 Released		4Q						
Version 12.1 Released			4Q					
Version 13.0 Released				4Q				
Version 14.0 Released						4Q		
ShipIR M&S Tool								
Version 3.1 Released	1Q							
Version 3.2 Released		1Q						
Version 3.3 Released			1Q					
Version 3.4 Released				4Q				
Composite Materials								
Fire Safety Goals	4Q		4Q					
Flaw Criticality and Non Destructive Testing Goals	4Q	4Q						
Joint Design and Validation Guide	4Q	4Q	4Q					
Structural Design Goals	4Q	4Q		4Q				
Fire Safety Goals	4Q		4Q					
Flaw Criticality and Non Destructive Testing Goals	4Q	4Q		4Q				
Joint Design and Validation Guide	4Q	4Q	4Q	4Q				
Structural Design Goals	4Q	4Q		4Q				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**4.968**	**4.091**	**9.234**	**8.496**	**7.597**	**7.651**	**7.655**	**7.598**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) **MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:** This project supports the Integrated Power Systems (IPS) program. IPS provides total ship electric power, including electric propulsion, power conversion and distribution, combat system and mission load interfaces to the electric power system. IPS supports multiple ship class applications for future surface ships, with DD(X), DD(X) future flight upgrades, and CG(X) being the primary ship application target. On 6 January 2000, SECNAV announced Navy intent that DD(X) be an electric drive ship with integrated power architecture. IPS reduces acquisition and operating costs of naval ships and increases military effectiveness. IPS leverages investments in technologies that will be useable by both military and commercial sectors.

- (U) IPS has the potential to revolutionize the design, construction, and operation of U.S. naval ships by using electricity as the primary energy transfer medium aboard ship. The flexibility of electric power transmission allows power generating modules with various power ratings to be connected to propulsion loads and ship service in any arrangement that supports the ship's mission at lowest overall cost. Systems engineering in IPS is focused on increasing the commonality of components used across ship types and in developing modules which will be integral to standardization, zonal system architectures, and generic shipbuilding strategies. The purpose of increased commonality is to reduce the total cost of ship ownership by using common modules composed of standard components and/or standard interfaces.

- (U) IPS addresses ship platform program goals through: reduced ship acquisition cost through integration of propulsion and ship's service prime movers; lower ship operational costs resulting from more flexible operating characteristics and more efficient components; reduced ship construction costs by allowing more extensive modular construction of power generation, distribution, and loads; improved ship survivability and reduced vulnerability through increased arrangement flexibility and improved electrical system survivability; reduced manning through improved power management systems and reduced on-board maintenance requirements; improved ship signature characteristics; improved design adaptability to meet future requirements of multiple ship types or missions; integrating power management and protection by fully utilizing the power electronics in the system to perform fault protection as well as power conversion and load management functions; simplified technology insertion which allows new technologies to be installed within IPS much less expensively than presently possible; and, reduced machinery system acquisition costs through utilization of commercially shared technologies and components.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	4.191	0.939	4.783	5.896
RDT&E Articles Quantity	0	0	0	0

System Development: Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, ship integration, architecture design, ship electric architectures and high power weapons systems requirements, and related efforts. Evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include fuel cells, high-energy weapons, high power radars, high-speed generators and advanced power electronics.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.477	3.152	3.851	2.000
RDT&E Articles Quantity	0	0	0	0

System Test: Conduct Integrated Fight through Power (IFTP) testing at NSWCCD, Philadelphia PA and at-sea on the RV Triton. Completed integration of IFTP and DDX IPS test sites. Mitigate potential risks associated with a fielded IPS system to reduce ship's signature, improve survivability and efficiency by fabricating components, inserting into the IPS test site or an appropriate test platform. Conduct demonstrations to maintain and develop the critical engineering capability and capacity to insert future high power weapon systems (radars, lasers and electromagnetic launch weapons) into DD(X) and future ship classes including CG(X). Conduct demonstrations to show improved performance and potential to reduce combat system costs.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.300	0.000	0.600	0.600
RDT&E Articles Quantity	0	0	0	0

Platform Specific: Develop IPS configurations in support of all future surface ship programs. Develop/modify IPS ship configuration documentation including concepts of operations, System Level Description/Requirements, and module performance specifications as necessary to support power system requirements for TAOE(X), LHA(R), MPF(F), and COBRA JUDY. Improve ship power system smart product model to support cost/performance tradeoffs of alternative IPS ship configurations and evaluation of emerging electric power system and component technologies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	4.949	4.130	9.750	9.562
FY 2006 President's Budget	4.968	4.091	9.234	8.496
Total Adjustments	0.019	-0.039	-0.516	-1.066
Summary of Adjustments				
Congressional undistributed reductions	-0.056	-0.038		
SBIR/STTR Transfer	-0.108			
Other Adjustments	0.145	-0.001	-0.516	-1.066
Subtotal	-0.019	-0.039	-0.516	-1.066

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2471/Integrated Power Systems	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. (U)ACQUISITION STRATEGY:

(U) IPS is a candidate system for DD(X) and all other future surface ships.

F. (U)MAJOR PERFORMERS:

(U) IPS DD(X) Design Agent, Ingalls Shipbuilding Iinc. General Atomics and DRS Power and Controls Technologies Inc., IPS IFTP contractors.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) — DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT: 0603513N/Shipboard System Component Development

PROJECT NUMBER AND NAME: 2471/Integrated Power Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Lockheed M Syracuse, NY	23.572	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Sec845/804	DD (X) Industry Teams	66.661	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD (X) Design Agent	154.500	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	US/UK MOU	DERA, UK	1.350	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Sec845/804	IFTP Teams	49.713	2.769	10/03	1.818	10/04	1.854	10/05	0.232	10/06	CONT	CONT	
	C/CPAF	Anteon, Corp. Fairfax, VA	0.000	1.459	02/04	0.946	N/A	1.935	10/05	1.324	10/06	CONT	CONT	
	WX	NSWCCD Philadelphia, PA	24.155	0.232	10/03	0.278	10/04	0.531	10/05	0.400	10/06	CONT	CONT	
	WX	NSWCCD Dahlgren, Va.	2.806	0.000	10/03	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Various	Other Contractors	9.950	0.103	12/03	0.175	12/04	0.100	10/05	0.100	10/06	CONT	CONT	
	Various	Other Govt Activities	1.895	0.000	N/A	0.000	N/A	0.100	10/05	0.100	10/06	CONT	CONT	
	C/CPAF	RS TD, TBD	0.000	0.000	N/A	0.000	N/A	3.753	1Q/05	4.834	10/06	CONT	CONT	
Ancillary Hardware Development													0.000	
Systems Engineering													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees	C/CPAF	Anteon, Corp. Fairfax, VA		0.055	3Q/04	0.054	07/05	0.111	3Q/06	0.076	3Q/07	CONT	CONT	
Subtotal Product Development			334.602	4.618		3.271		8.384		7.066		CONT	CONT	

Remarks:

Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000				0.000		0.000	0.000	

Remarks:

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2005**

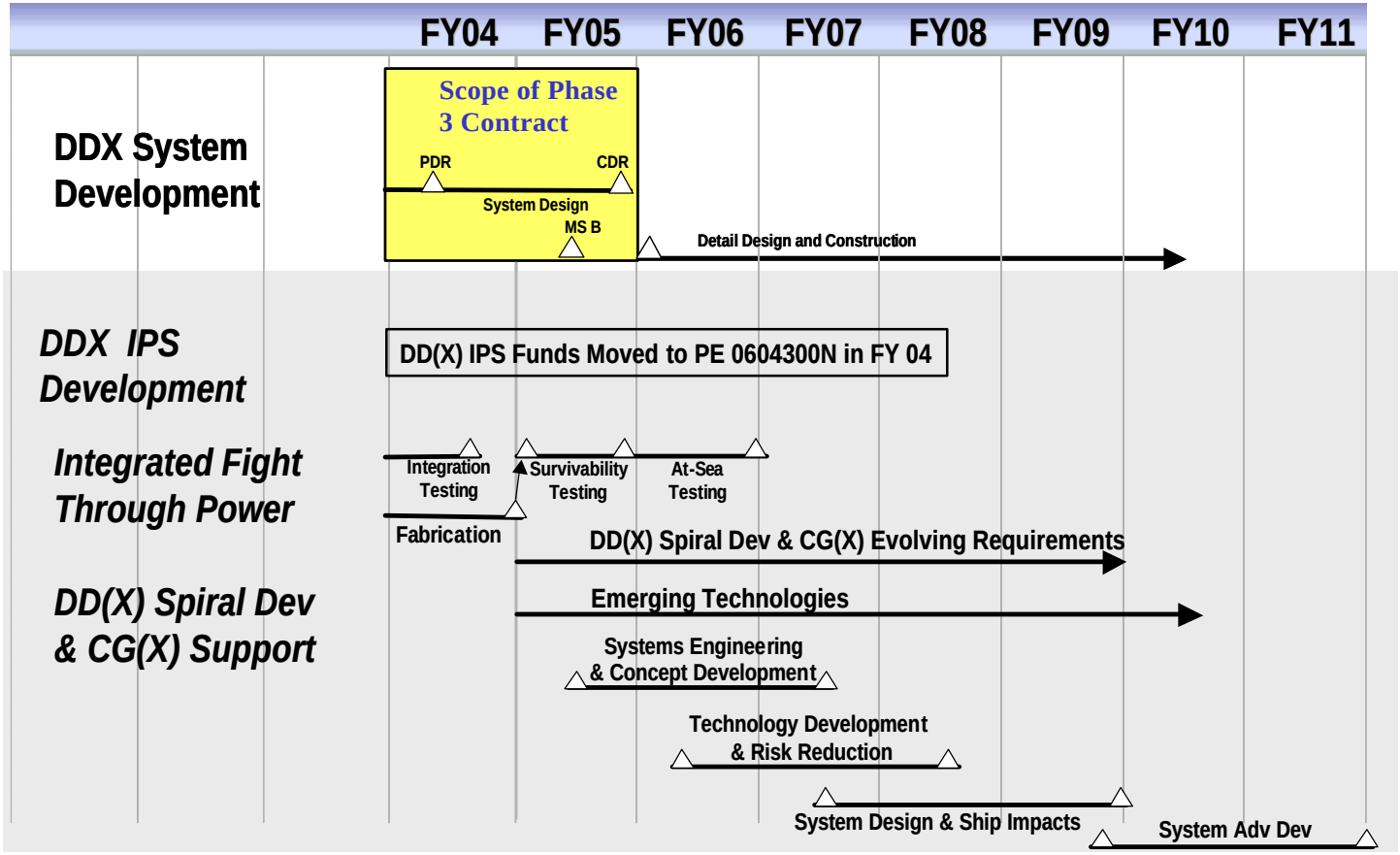
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**
PROGRAM ELEMENT: 0603513N/Shipboard System Component Development
PROJECT NUMBER AND NAME: 2471/Integrated Power Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC CD Philadelphia, PA	17.626	0.350	10/03	0.800	10/04	0.820	10/05	1.400	10/06	CONT	CONT	
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			17.626	0.350		0.800		0.820		1.400		CONT	CONT	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel	Various	Various	0.574	0.000	N/A	0.020	10/04	0.030	10/05	0.030	10/06	CONT	CONT	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.574	0.000		0.020		0.030		0.030		CONT	CONT	
Remarks:														
Total Cost			352.802	4.968		4.091		9.234		8.496		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2471/Integrated Power Systems



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2005**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
IPS IFTP Integration Testing	1Q-3Q							
IPS IFTP Fabrication & Factory Testing	1Q-4Q							
IPS IFTP Survivability Testing		1Q-4Q						
At Sea Testing			1Q-4Q					
System Engineering & Concept Development		2Q-4Q	1Q-4Q	1Q-2Q				
Technology Development & Risk Reduction			2Q-4Q	1Q-4Q	1Q-2Q			
System Design & Ship Impact				2Q-4Q	1Q-4Q	1Q-4Q		
System Advanced Development						3Q-4Q	1Q-4Q	1Q-4Q

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 4019/Radar Upgrades			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**0.000**	**0.000**	**0.000**	**1.792**	**6.997**	**7.143**	**7.294**	**7.445**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Radar Upgrades will fund future upgrades/technology insertion efforts for the Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, T/R module, Receiver/Exciter, Signal Data Processor and power/cooling systems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	4019/Radar Upgrades

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.809
RDT&E Articles Quantity	0	0	0	0

Radar Upgrades and Technology Insertion for the MFR/VSR/DBR hardware and software. Commence Radar Upgrades studies and analysis in FY 07.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.851
RDT&E Articles Quantity	0	0	0	0

Government Engineering Services and Program Management support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Perform oversight and assessment of efforts associated with this phase of the program.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.132
RDT&E Articles Quantity	0	0	0	0

Provide Program Management in support of radar upgrades and technology insertion.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	4019/Radar Upgrades

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	0.000	0.000	10.023	6.806
FY 2006 President's Budget	0.000	0.000	0.000	1.792
Total Adjustments	0.000	0.000	-10.023	-5.014
Summary of Adjustments				
Realign Volume Search Radar to 0604300N/2735			-10.000	-5.000
Miscellaneous Minor Adjustments			-0.023	-0.014
Subtotal	0.000	0.000	-10.023	-5.014

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	4019/Radar Upgrades

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. (U)ACQUISITION STRATEGY:

(U)

F. (U)MAJOR PERFORMERS:

(U) Northrop Grumman Ship Systems, Raytheon and Lockheed Martin.

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2005**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 4019/Radar Upgrades									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Ancillary Hardware Development													0.000	
Systems Engineering	C/CPAF	DD(X) Design Agent	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.809	1QFY07	CONT	CONT	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			0.000	0.000		0.000				0.809		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000				0.000		0.000	0.000	
Remarks:														

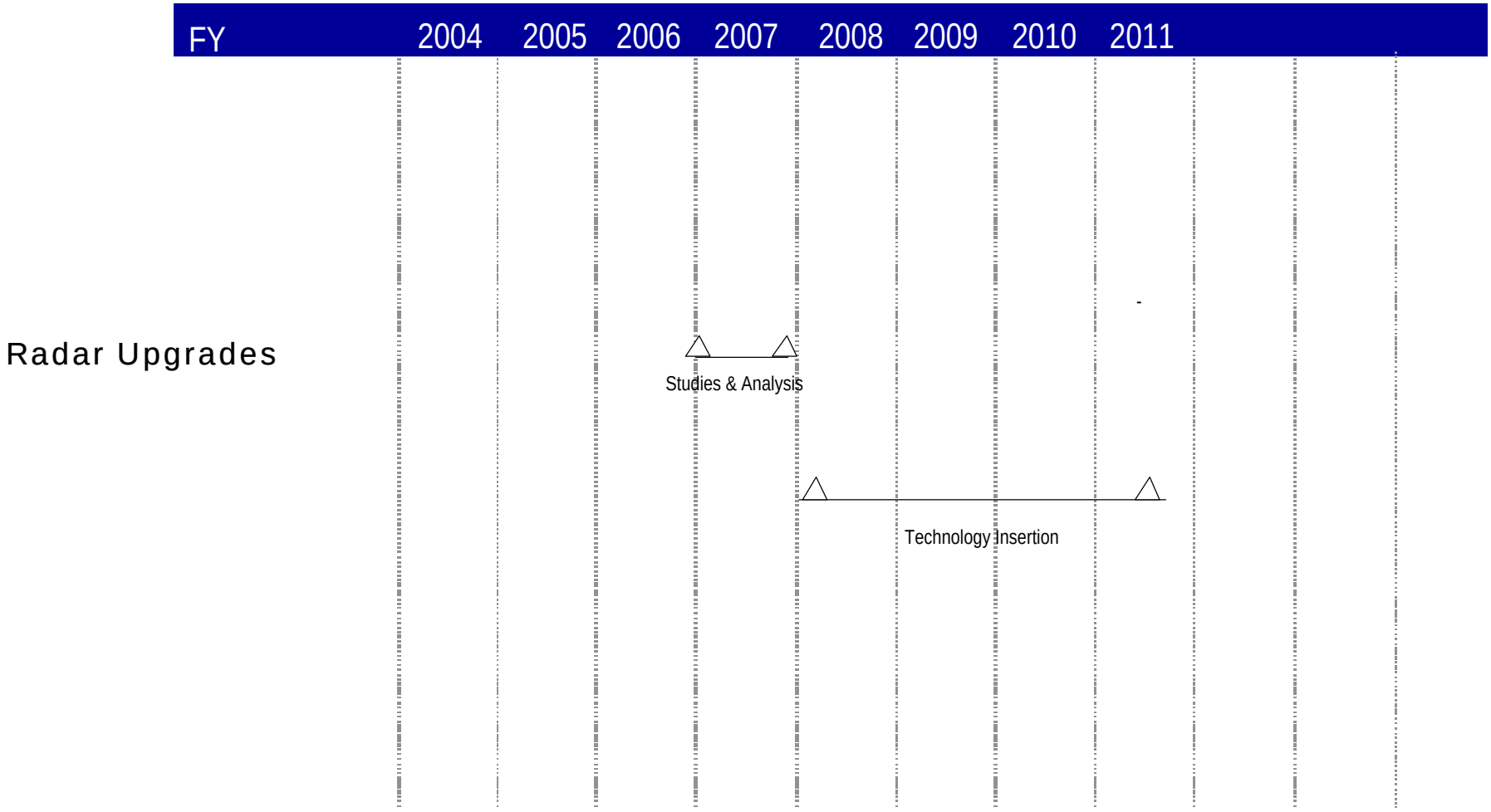
R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2005**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603513N/Shipboard System Component Development						PROJECT NUMBER AND NAME 4019/Radar Upgrades						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000				0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support														
Government Engineering Support	WX	Other Gov't Activities	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.851	1QFY07	CONT	CONT	
Program Management Support	C/CPFF	Various	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.132	1QFY07	CONT	CONT	
Travel														
Labor (Research Personnel)														
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.983		CONT	CONT	
Remarks:														
Total Cost			0.000	0.000		0.000		0.000		1.792		CONT	CONT	
Remarks:														

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 4019/Radar Upgrades



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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2005**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 4019/Radar Upgrades			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Radar Upgrade Studies and Analysis				1Q-4Q				
Radar Upgrade Technology Insertion					1Q-4Q	1Q-4Q	1Q-4Q	1Q