EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**			R-1 ITEM NOMENCLATURE 0603513N/Shipboard System Component Development				
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	**44.282**	**50.918**	**14.135**	**16.686**	**16.828**	**16.983**	**17.161**
2465/DC/Survivability	**6.062**	**4.201**	**1.900**	**1.890**	**1.902**	**1.887**	**1.937**
2468/Undersea Warfare (USW)	**1.636**	**3.396**	**1.276**	**0.000**	**0.000**	**0.000**	**0.000**
2469/ Open Systems Architecture (OSA)	**3.217**	**2.475**	**1.771**	**1.806**	**1.826**	**1.857**	**1.889**
2470/Integrated Topside Design (ITD)	**3.548**	**2.651**	**0.477**	**0.463**	**0.462**	**0.467**	**0.474**
2471/Integrated Power Systems (IPS)	**3.997**	**9.095**	**7.142**	**6.314**	**6.328**	**6.334**	**6.285**
2858/MTTC/IPI	**5.792**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
4019/Radar Upgrades	**0.000**	**0.000**	**1.569**	**6.213**	**6.310**	**6.438**	**6.576**
9038/Automated Maintenance Environment	**2.521**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9183/Electro-Magnetic Launcher	**1.453**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9517/Amorphous Metal Permanent Magnet Gen Set	**1.453**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9518/Carbon Foam	**4.050**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9519/ DDX Ship Systems Power Electronics Tech	**1.359**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9520/Galley Food Waste Disposal System	**0.969**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9521/Intelligent Systems Consortium Initiative	**1.461**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9522/Shipboard Personal Locator Beacon	**2.218**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9523/Shipboard Use of Alt Composition Pipes	**1.639**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9524/Shipboard Wireless Maintenance Assistant	**2.907**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
9999/Undistributed RDTE,N Congressional Adds	**0.000**	**29.100**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2006**
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 Congressional adds are contained in this Program Element:

FY 05 Congressional adds-

-**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.

-**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 Personal Locator Beacon.** This system will track and monitor the health of all personnel on board a ship and activate an alarm in the event ana individual is at risk or has become a casualty.

-**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.

FY 06 Congressional Adds-

-**Project 9999- Congressional Adds: $29,100**-This project consists of the following FY 06 Congressional adds: Amorphous metal permanent magnet generator, Intelligent Systems Consortium NASEA-Carderock/SHSU, Water mist fire protection systems, Flash detection system for Navy 501 shipboard engines, Alternative composition-low cost pipe for shipboard application, Carbon foam program, Electromagnetic launcher (rail gun), Integrated power distribution system for next generation all-electric ship, Smart machinery spaces system, HTS AC synchronous propulsion motor and MTTC/IPI and National Surface Treatment Center.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2006**
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**6.062**	**4.201**	**1.900**	**1.890**	**1.902**	**1.887**	**1.937**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds development of DD(X) 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 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.000	1.331	0.400
RDT&E Articles Quantity	0	0	0

(U) In FY 05, conducted live fire tests to characterize the fault response of medium voltage electrical systems to weapons effects including fragmentation and fire. In FY 06, develop fault isolation control system approaches for medium voltage electrical systems that enable bus level combat induced faults to be rapidly isolated maintaining power to combat systems. Complete development in FY 07 and transition to the DD(X) program.

In FY06, initiate a study to determine the survivability benefits of advanced, commercial electrical architectures and components including the use of solid core conductors and wireless control. Complete study in FY 07.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.300	1.290	0.900
RDT&E Articles Quantity	0	0	0

(U) In FY 05, demonstrated under live fire conditions devices that will improve network survivability by isolating network shorts generated by fire and fragments. Demonstrated the fire detection performance of commercial sensors for application in machinery spaces and magazines and transitioned to DD(X) program. In FY 06 through 07, develop wireless control approaches and architectures that significantly improve survivability and reduce installation costs tthrough the elimination of wires and cabling. In FY 06, conduct live fire demonstration of a machinery space wireless control system for fire detection and suppression system activation.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.830	0.300	0.000
RDT&E Articles Quantity	0	0	0

(U) In FY 05, conducted an underwater explosion shock test employing a DD(X) raft, prototype shock mount and representative electronic equipment to demonstrate equipment survivability and developed a low-cost, portable shock testing devices for rapidly shock qualifying commercial off the shelf (COTS) equipment; In FY 06 complete low cost testing device demonstrations. Transition to DD(X).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.770	1.280	0.600
RDT&E Articles Quantity	0	0	0

(U) In FY 05 developed a preliminary software upgrade for the closed loop degaussing system that provides for a low signature during ship rolling conditions by compensating for eddy currents . In FY 06, demonstrate software using DDG 76, USS Higgins; finalize software in FY 07 and transition to DD(X) and LPD -17 programs.

In FY 05 through FY 07, continue development of a real-time tactical decision aid that provides safe operating areas as a function of mine threat ; continued coding in FY 05. In FY 06 complete development of initial prototype code. In FY 07 complete prototype code development and conduct shore-side fleet evaluation.

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

(U) In FY 05 completed development of new weapons effect and recoverability models. Transitioned to acquistion programs.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.592	0.000	0.000
RDT&E Articles Quantity	0	0	0

(U)IN FY 05, completed conceptual development of an 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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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 2005	FY 2006	FY 2007
FY 2006 President's Budget:	6.082	4.265	2.127
FY 2007 President's Budget:	6.062	4.201	1.900
Total Adjustments	-0.020	-0.064	-0.227
(U)Summary of Adjustments			
Rescissions		-0.045	
Inflation			0.009
Other General Provisions	-0.020	-0.019	-0.004
Warfare Center Rates			-0.025
Programmatic Changes			-0.207
Subtotal	-0.020	-0.064	-0.227

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineering	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458	CONT.	CONT.
PE 211900 / SCN	304.048	706.086	2,568.111	3,054.938	2,607.342	2,701.352	2,308.481	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 2006**				
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 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	1.500	1.500
Ancillary Hardware Development												
Product Development	WX	NSWC CD Bethesda, MD	18.201	5.992	12/04	4.201	12/05	1.900	12/06	CONT	CONT	
	Various	Other Contractors	5.251	0.000	N/A	0.000	N/A	0.000	N/A	5.251	5.251	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			24.952	5.992		4.201		1.900		CONT	CONT	1.500
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:												

CLASSIFICATION:

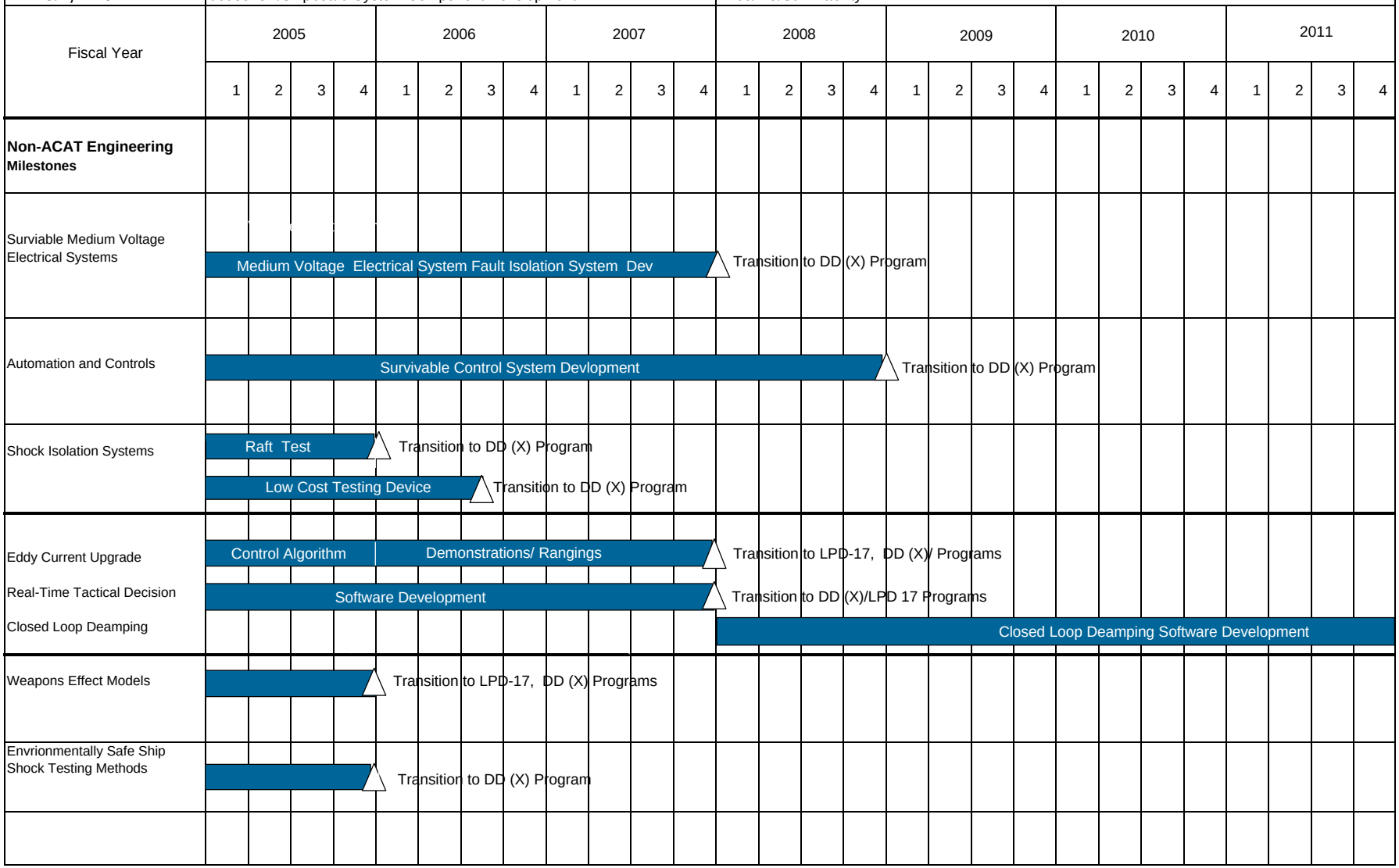
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2006**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2465/DC/Survivability						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 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	
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	0.234	
Government Engineering Support	VAR	Othe Gov't Activities	0.765	0.070	03/05	0.000	N/A	0.000	N/A	0.000	0.835	
Program Management Support	WX	NSWC CD Bethesda, MD	0.075	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	0.121	
SBIR Assessment												
Subtotal Management			1.195	0.070		0.000		0.000		0.000	1.265	
Remarks:												
Total Cost			26.147	6.062		4.201		1.900		CONT	CONT	1.500
Remarks:												

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2006**

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



R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Medium Voltage Fault Characterization Test	4Q						
Medium Voltage Control System Approaches		3Q (prelim)	2Q				
Advanced Electrical Architectures Study			4Q				
Network Short Protection Demonstration	2Q						
Commercial Sensor Demonstrations	3Q						
Wireless Control System Live Fire Demo		3Q					
Wireless Control System Architectures/ Prelim Designs			4Q (prelim)	4Q			
Electronics Space Raft Test	4Q						
Low Cost COTS Qualification Test Devices	4Q						
Low Cost COTS Qualification Test Demonstrations	4Q	3Q					
Eddy Current Compensation Control Algorithm	2Q (prelim)		4Q				
Eddy Current Demonstrations		3Q					
Tactical Decision Aid Requirements	2Q						
Tactical Decision Aid Prototype Code		3Q (prelim)	3Q				
Tactical Decision Aid Fleet Evaluation			4Q				
De-Amping System Prototype Design				2Q(prelim)	4Q		
De-Amping System Control Algorithm							4Q
Weapons Effects Model V&V							
Recoverability/ New Weapons Effects models	4Q						
Alternative Shock Test Method Scale Demonstrations	4Q						

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2006**	
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**1.636**	**3.396**	**1.276**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty	**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 defence and in-stride mine avoidance. Current 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 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.463	0.791	0.114
RDT&E Articles Quantity	0	0	0

(U) IUSW-21 Risk reduction contracts/tasks - In FY 05, executed risk reduction tasks into the ADM to support the build-test-build process and the FY 07 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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.799	1.930	0.511
RDT&E Articles Quantity	0	0	0

(U) IUSW-21 ADM/EDM Development - Performed Integrated Peer Group (IPG) engineering reviews of IUWS-21 advanced technologies. In FY 05, completed the development and integration of IUSW-21 advanced technologies into ADM/EDM demonstration system for FY05 sea tests and continued 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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.374	0.675	0.651
RDT&E Articles Quantity	0	0	0

(U) In FY 05, completed equipment preparation for FY 05 sea test. Shipped and installed equipment, conducted FY 05 sea tests and collected 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 2006**
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 2005	FY 2006	FY 2007
FY 2006 President's Budget:	1.653	3.448	1.473
FY 2007 President's Budget:	1.636	3.396	1.276
Total Adjustments	-0.017	-0.052	-0.197
(U)Summary of Adjustments			
Rescissions		-0.036	
Inflation			0.006
Other General Provisions	-0.017	-0.016	-0.052
Warfare Center Rates			-0.008
Programmatic Changes			-0.143
Subtotal	-0.017	-0.052	-0.197

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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 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	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458	CONT.	CONT.
PE 211900 / SCN	304.048	706.086	2,568.111	3,054.938	2,607.342	2,701.352	2,308.481	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. Broad Agency Announcements (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 Contracting Phase III, responsibility for IUSW-21 ADM/EDM development for the FY04 and FY05 sea tests was with the DD(X) Design Agent.

F. (U)MAJOR PERFORMERS:

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

CLASSIFICATION:

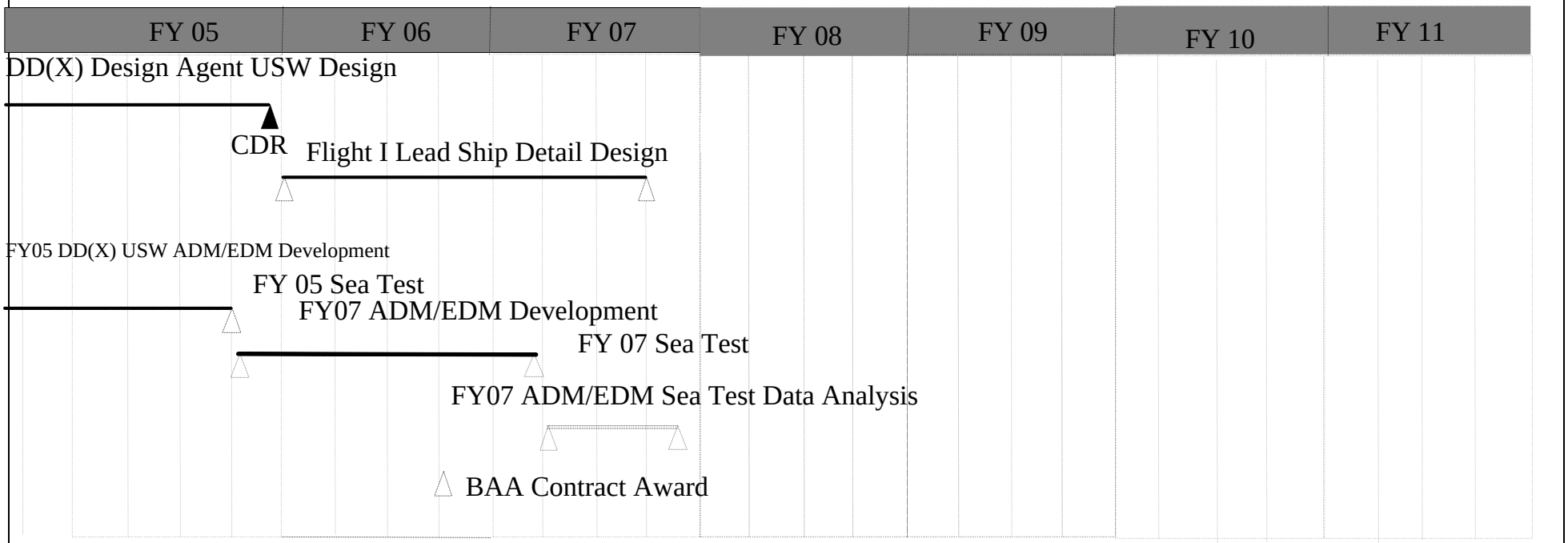
Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2006**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 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	11.104	11.104
	CPAF	DD(X) Design Agent	8.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.000	8.000
	BAA/CPFF	Competition	15.150	0.000	N/A	0.339	Various	0.171	Various	0.000	15.660	
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	0.813	
	WX	Other Gov't Activities	0.460	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.460	
	C/CPFF	RSC, Newport, RI	0.827	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.827	
Licenses	BAA/CPFF	Competition	0.000	0.000	N/A	0.724	Various	0.197	Various	0.000	0.921	
Tooling												
GFE												
Award Fees												
Subtotal Product Development			36.354	0.000		1.063		0.368		0.000	37.785	19.104
Remarks:												
Development Support												
Software Development	C/CPFF	LMC, Syracuse, NY	11.589	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.589	
	C/CPFF	RSC, Newport, RI	10.316	0.000	N/A	0.000	N/A	0.000	N/A	0.000	10.316	
	WX	Other Gov't Activities	0.750	0.463	N/A	0.000	N/A	0.000	N/A	0.000	1.213	
	CPAF	DD(X) Design Agent	6.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	6.000	
Training Development	BAA/CPFF	Competition	0.000	0.000	N/A	1.350	Various	0.379	Various	0.000	1.729	
Integrated Logistics Support												
Configuration Management												
GFE												
Award Fees												
Subtotal Support			28.655	0.463		1.350		0.379		0.000	30.847	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2006**				
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 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	7.837	
	SS/CPFF	APL/JHU Laurel, MD	1.430	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.430	
	CPAF	DD(X) Design Agent	1.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.000	
	WX	Other Gov't Activities	0.370	0.366	Various	0.645	Various	0.255	Various	0.000	1.636	
Operational Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			10.637	0.366		0.645		0.255		0.000	11.903	
Remarks:												
Contractor Engineering Support	various	Other Contractors	2.494	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.494	
Government Engineering Support	WX	Other Gov't Activities	8.555	0.807	1QFY05	0.338	1QFY06	0.274	1QFY07	0.000	9.974	
	SS/CPFF	Various	2.355	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.355	
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	0.290	
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			13.694	0.807		0.338		0.274		0.000	15.113	
Remarks:												
Total Cost			89.340	1.636		3.396		1.276		0.000	95.648	19.104
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2006
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



R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
FY05 DD(X) USW ADM/EDM Development/Integration	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		4Q					
FY07 ADM/EDM Sea Test			1Q				
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 2006**	
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**3.217**	**2.475**	**1.771**	**1.806**	**1.826**	**1.857**	**1.889**
RDT&E Articles Qty	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

(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 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.870	0.620	0.000
RDT&E Articles Quantity	0	0	0

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

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.347	1.855	1.771
RDT&E Articles Quantity	0	0	0

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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 2005	FY 2006	FY 2007
FY 2006 President's Budget:	3.430	2.512	1.997
FY 2007 President's Budget:	3.217	2.475	1.771
Total Adjustments	-0.213	-0.037	-0.226
(U)Summary of Adjustments			
Rescissions		-0.026	
Inflation			0.008
Other General Provisions	-0.026	-0.011	-0.022
Warfare Center Rates			-0.018
Programmatic Changes	-0.187		-0.194
Subtotal	-0.213	-0.037	-0.226

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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 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	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458	CONT.	CONT.
PE 211900 / SCN	304.048	706.086	2,568.111	3,054.938	2,607.342	2,701.352	2,308.481	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.

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2006**				
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 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	35.327	35.327
	WX	NSWC CD Bethesda, MD	10.023	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	4.987	
	Various	Other Contractors	2.735	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.735	
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			53.072	0.000				0.000		0.000	53.072	35.327
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	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2006**				
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 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	
Remarks:												
Contractor Engineering Support	Various	Other Contractors	8.879	0.153	N/A	0.263	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	3.763	3.763	
	WX	NSWC Carderock, Md.	2.287	2.347	10/04	1.212	10/05	0.000	10/06	CONT	CONT	
	Various	Other Gov't Activities	31.343	0.717	Various	1.000	Various	1.571	Various	CONT	CONT	
Program Management Support												
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			46.272	3.217		2.475		1.771		CONT	CONT	
Remarks:												
Total Cost			99.344	3.217		2.475		1.771		CONT	CONT	35.327
Remarks:												

R-1 SHOPPING LIST - Item No. 39

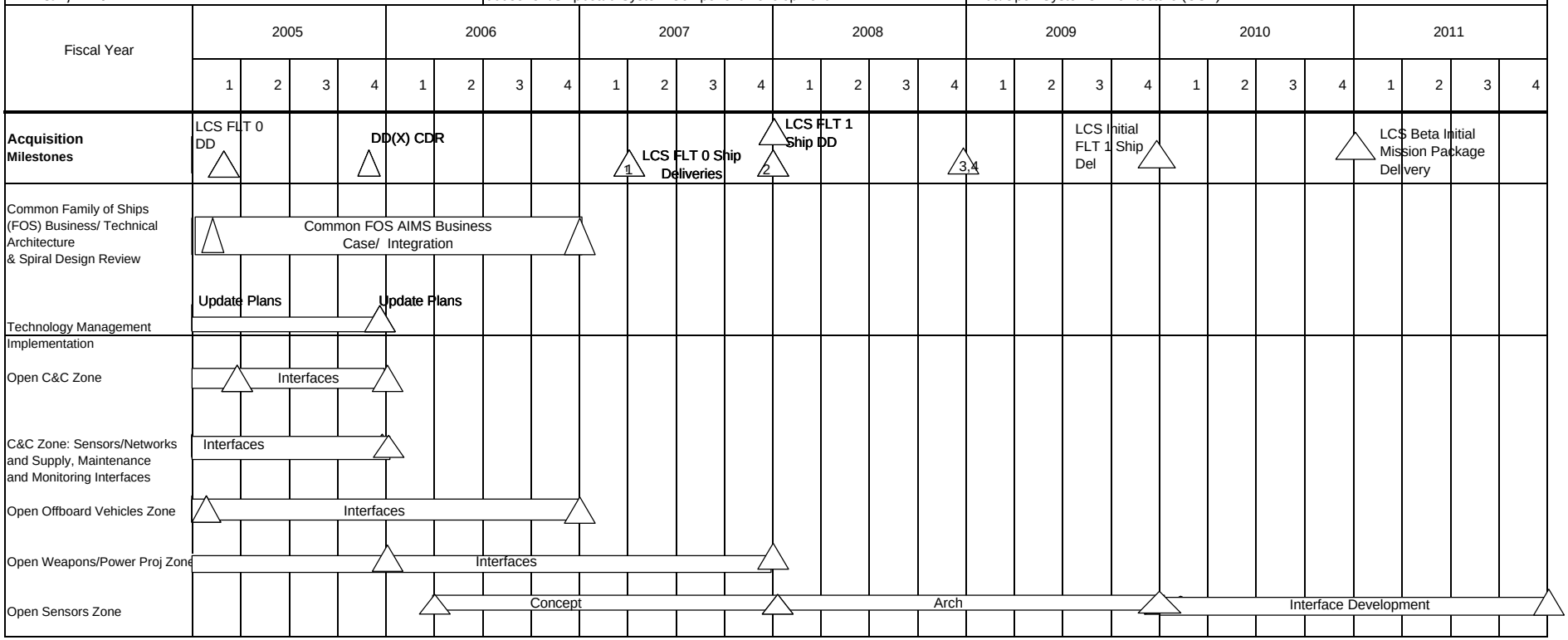
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2006**

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)



R-1 SHOPPING LIST - Item No. 39

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

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Business/Technical Architecture							
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						
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					
Sensor/Networks and SMMOA Risk Reduction							
Sensor/Networks and SMMOA Interface Concepts Complete							
Sensor/Networks and SMMOA Interfaces Defined		1Q					
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

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2006**	
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**3.548**	**2.651**	**0.477**	**0.463**	**0.462**	**0.467**	**0.474**
RDT&E Articles Qty	**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 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.512	1.120	0.202
RDT&E Articles Quantity	0	0	0

FY 05: Completed validation of V1.0 RF Coupling D&A M&S Tool; Released V12.0 RTS M&S Tool; Released 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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.460	1.091	0.201
RDT&E Articles Quantity	0	0	0

FY05 Released Ver 2.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Released 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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.576	0.440	0.074
RDT&E Articles Quantity	0	0	0

FY05: Completed Joint Design Failure Mapping Report; Completed Structural Design and Analysis of Ship Composite Topside Structure Report; Transitioned Structural Design and Analysis of Ship Composite Topside Structure Info to ABS Naval Vessel Rules; Transitioned 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 2006**
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 2005	FY 2006	FY 2007
FY 2006 President's Budget:	3.554	2.691	0.535
FY 2007 President's Budget:	3.548	2.651	0.477
Total Adjustments	-0.006	-0.040	-0.058
(U)Summary of Adjustments			
Rescissions		-0.028	
Inflation			0.002
Other General Provisions	-0.006	-0.012	
Warfare Center Rates			-0.008
Programmatic Changes			-0.052
Subtotal	-0.006	-0.040	-0.058

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
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 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	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458	CONT.	CONT.
PE 211900 / SCN	304.048	706.086	2,568.111	3,054.938	2,607.342	2,701.352	2,308.481	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 2006**				
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 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	24.556	24.556
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			24.556	0.000		0.000		0.000		24.556	24.556	24.556
Remarks:												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
GFE												
Award Fees												
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 2006**				
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 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	GSA/FFP	Anteon Arlington, Va.	3.460	0.000	N/A	0.000	N/A	0.000	N/A	3.460	3.460	
	Various	Other Contractors	0.095	0.000	N/A	0.000	N/A	0.000	N/A	0.095	0.095	
Government Engineering Support	WX	NSWC CD Bethesda, MD	1.414	0.000	N/A	0.000	N/A	0.000	N/A	1.414	1.414	
	WX	NRL, Washington DC	2.145	0.000	N/A	0.000	N/A	0.000	N/A	2.145	2.145	
	WX	SSCSD, San Diego, CA	2.706	1.025	10/04	1.029	10/05	0.000	N/A	2.706	2.706	
	Various	Other Gov't Activities	24.867	2.523	Various	1.622	Various	0.477	Various	CONT	CONT	
Program Management Support												
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			34.687	3.548		2.651		0.477		CONT	CONT	
Remarks:												
Total Cost			59.243	3.548		2.651		0.477		CONT	CONT	24.556
Remarks:												

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: **February 2006**

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

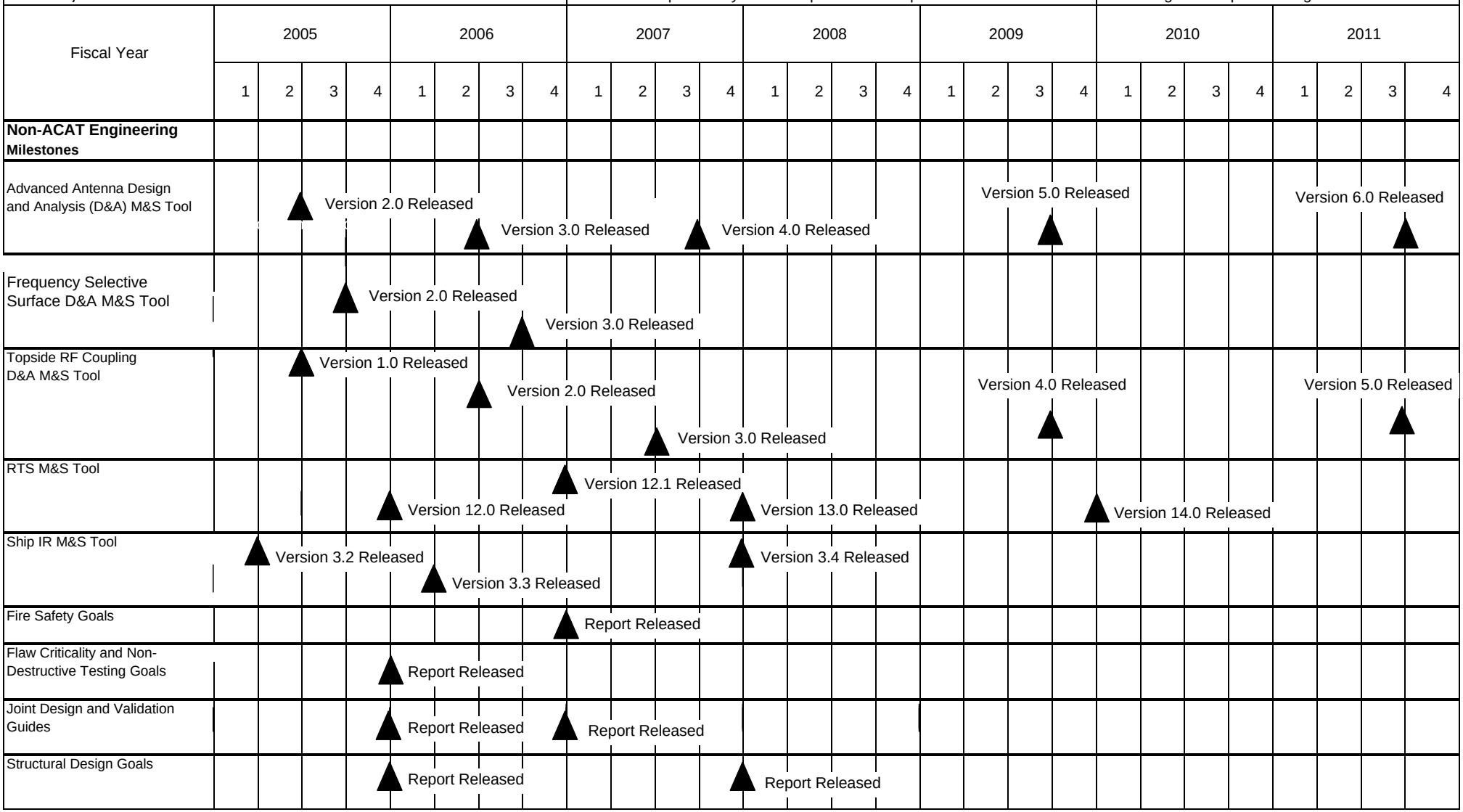


Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design		
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 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					
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 12.0 Released	4Q						
Version 12.1 Released		4Q					
Version 13.0 Released			4Q				
Version 14.0 Released					4Q		
ShipIR M&S Tool							
Version 3.2 Released	1Q						
Version 3.3 Released		1Q					
Version 3.4 Released			4Q				
Composite Materials							
Fire Safety Goals		4Q					
Flaw Criticality and Non Destructive Testing Goals	4Q						
Joint Design and Validation Guide	4Q	4Q					
Structural Design Goals	4Q		4Q				

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2006**	
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**3.997**	**9.095**	**7.142**	**6.314**	**6.328**	**6.334**	**6.285**
RDT&E Articles Qty	**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 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.053	6.237	5.069
RDT&E Articles Quantity	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, and advanced power electronics. Perform preliminary and detailed design of high-speed generators.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.644	2.258	1.473
RDT&E Articles Quantity	0	0	0

System Test: Conduct Integrated Fight through Power (IFTP) testing at NSWCCD, Philadelphia PA. 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 DDX and future ship classes including CGX. Conduct demonstrations to show improved performance and potential to reduce combat system costs.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.300	0.600	0.600
RDT&E Articles Quantity	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) and LHAR (X), MPF future, 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.

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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:

(U)Funding:	FY 2005	FY 2006	FY 2007
FY 2006 President's Budget:	4.091	9.234	8.496
FY 2007 President's Budget:	3.997	9.095	7.142
Total Adjustments	-0.094	-0.139	-1.354
(U) Summary of Adjustments			
Rescissions		-0.097	
Inflation			0.034
Other General Provisions	-0.094	-0.042	-0.55
Warfare Center Rates			-0.011
Programmatic Changes			-0.827
Subtotal	-0.094	-0.139	-1.354

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
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 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	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458	CONT.	CONT.
PE 211900 / SCN	304.048	706.086	2,568.111	3,054.938	2,607.342	2,701.352	2,308.481	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 2006**						
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 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	23.572	23.572
	Sec845/804	DD (X) Industry Teams	66.661	0.000	N/A	0.000	N/A	0.000	N/A	0.000	66.661	66.661
	CPAF	DD (X) Design Agent	154.500	0.000	N/A	0.000	N/A	0.000	N/A	0.000	154.500	154.500
	US/UK MOU	DERA, UK	1.350	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.350	1.350
	Sec845/804	IFTP Teams	52.482	1.000	10/04	0.400	10/05	0.200	10/06	CONT	CONT	
	C/CPAF	Anteon, Corp. Fairfax, VA	1.459	1.844	10/04	1.935	10/05	1.324	10/06	CONT	CONT	
	WX	NSWCCD Philadelphia, PA	24.387	0.278	10/04	0.531	10/05	0.400	10/06	CONT	CONT	
	WX	NSWCCD Dahlgren, Va.	2.806	0.020	10/04	0.000	N/A	0.000	N/A	0.000	2.826	
	Various	Other Contractors	10.053	0.000	N/A	0.100	10/05	0.100	10/06	CONT	CONT	
	Various	Other Govt Activities	1.895	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	5.068	1Q/05	4.507	10/06	CONT	CONT	
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees	C/CPAF	Anteon, Corp. Fairfax, VA	0.055	0.054	07/05	0.111	3Q/06	0.076	3Q/07	CONT	CONT	
Subtotal Product Development			339.220	3.196		8.245		6.707		CONT	CONT	246.083
Remarks:												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
GFE												
Award Fees												
Subtotal Support			0.000	0.000				0.000		0.000	0.000	0.000
Remarks:												

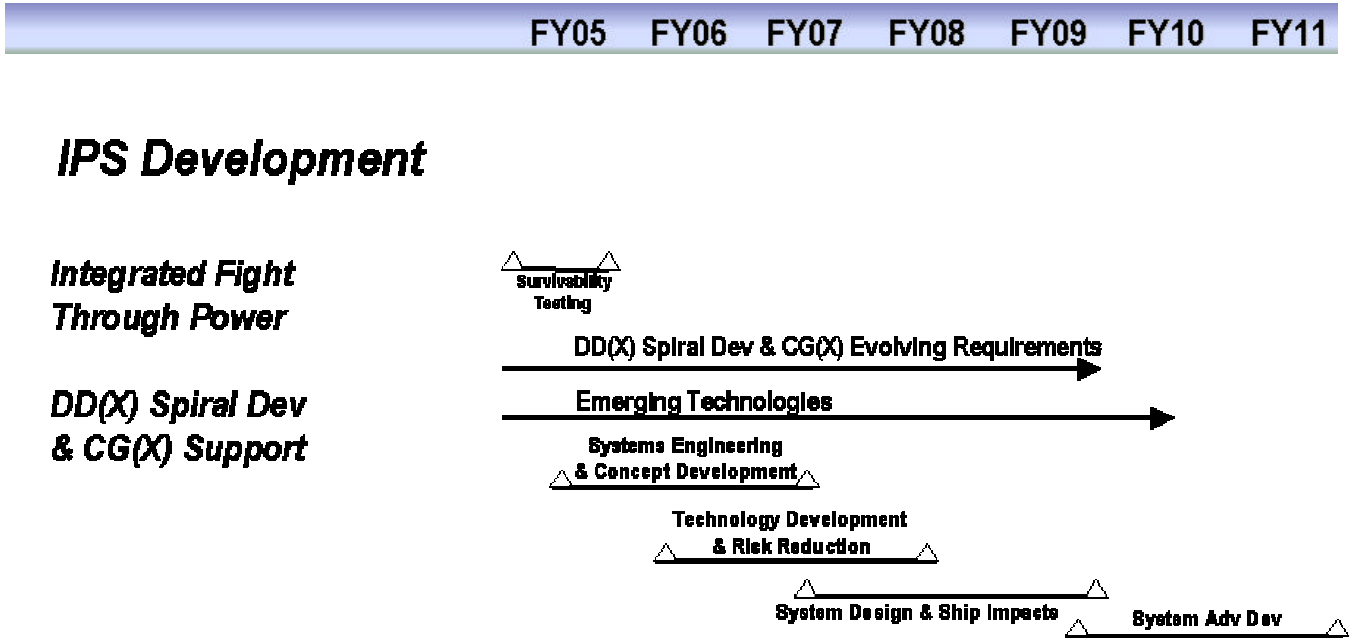
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2006**				
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 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	17.976	0.801	10/04	0.820	10/05	0.405	10/06	CONT	CONT	
Operational Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			17.976	0.801		0.820		0.405		CONT	CONT	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel	Various	Various	0.574	0.000	N/A	0.030	10/05	0.030	10/06	CONT	CONT	
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.574	0.000		0.030		0.030		CONT	CONT	
Remarks:												
Total Cost			357.770	3.997		9.095		7.142		CONT	CONT	246.803
Remarks:												

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: **February 2006**
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 2006**		
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
IPS IFTP Survivability 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

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2006	
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 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**0.000**	**0.000**	**1.569**	**6.213**	**6.310**	**6.438**	**6.576**
RDT&E Articles Qty	**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 2006**
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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.679
RDT&E Articles Quantity	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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.790
RDT&E Articles Quantity	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 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.100
RDT&E Articles Quantity	0	0	0

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
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:

(U) Funding:	FY 2005	FY 2006	FY 2007
FY 2006 President's Budget:	0.000	0.000	1.792
FY 2007 President's Budget:	0.000	0.000	1.569
Total Adjustments	0.000	0.000	-0.223
(U)Summary of Adjustments			
Rescissions			
Inflation			0.007
Other General Provisions			-0.047
Warfare Center Rates			-0.009
Programmatic Changes			-0.174
Subtotal	0.000	0.000	-0.223

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2006**
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	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	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	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458	CONT.	CONT.
PE 211900 / SCN	304.048	706.086	2,568.111	3,054.938	2,607.342	2,701.352	2,308.481	CONT.	CONT.

E. (U)ACQUISITION STRATEGY:

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 2006**						
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 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												
Systems Engineering	C/CPAF	DD(X) Design Agent	0.000	0.000	N/A	0.000	N/A	0.679	1QFY07	CONT	CONT	
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.000	0.000		0.000		0.679		CONT	CONT	
Remarks:												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 39

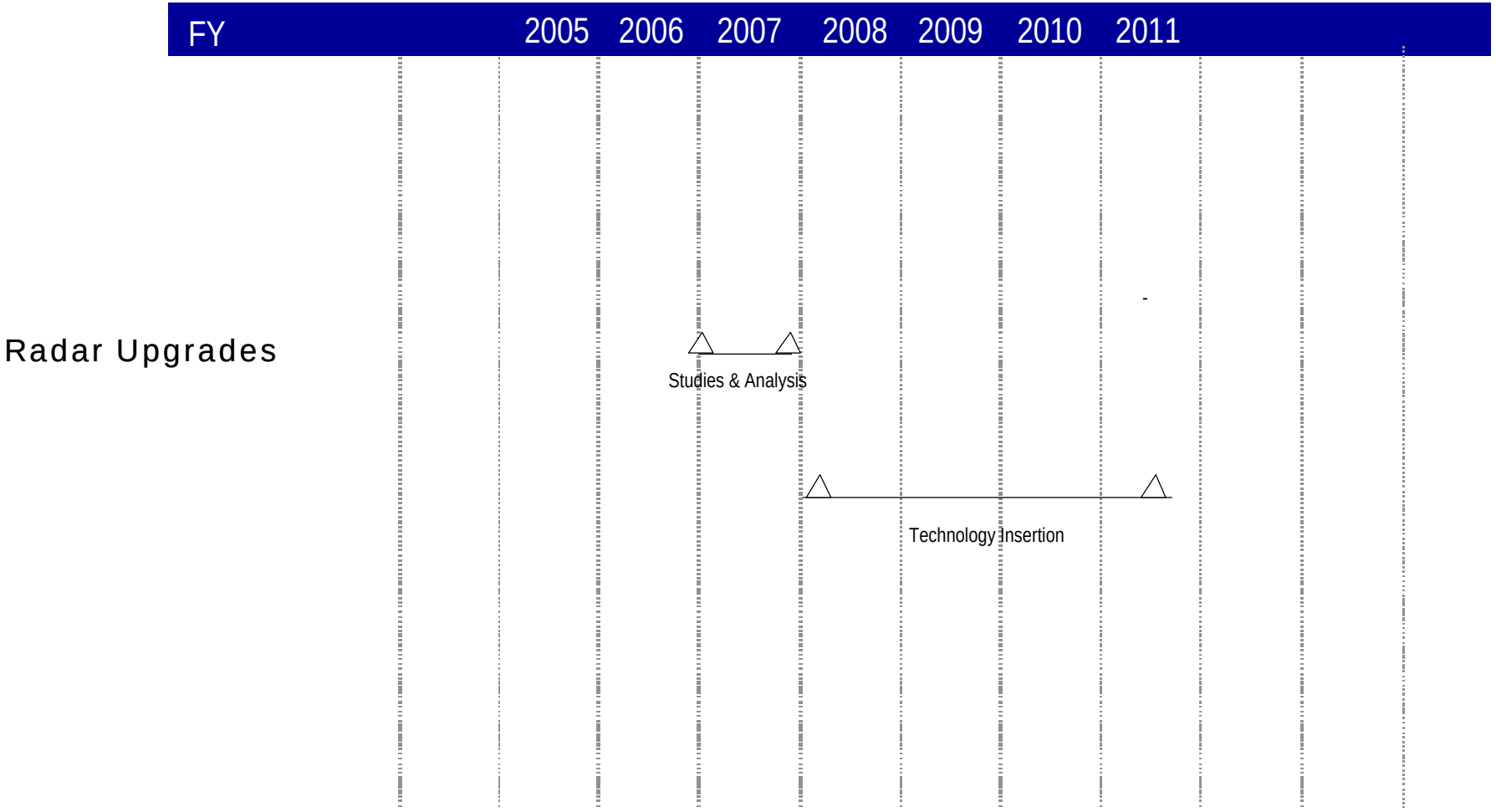
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: **February 2006**					
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 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	
Remarks:												
Contractor Engineering Support												
Government Engineering Support	WX	Other Gov't Activities	0.000	0.000	N/A	0.000	N/A	0.790	1QFY07	CONT	CONT	
Program Management Support	C/CPFF	Various	0.000	0.000	N/A	0.000	N/A	0.100	1QFY07	CONT	CONT	
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.890		CONT	CONT	
Remarks:												
Total Cost			0.000	0.000		0.000		1.569		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: **February 2006**
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



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2006**		
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 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

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	9999/ Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9183C				
Electromagnetic launcher (rail gun)	2.950			

(U) Funding of FY 06 Electromagnetic Launcher (rail gun), Congressional add.

	FY 06			
9517C				
Amorphous metal permanent magnet generator	1.000			

(U) Funding of FY 06 Amorphous metal permanent magnet generator, Congressional add.

	FY 06			
9518C				
Carbon foam program	2.000			

(U) Funding of FY 06 Carbon Foam program, Congressional add.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	9999/ Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9521C				
Intelligent Systems Consortium NAVSEA-Carderock	1.000			

(U) Funding of FY 06 Intelligent Systems Consortium NAVSEA-Carderock/SHSU, Congressional add.

	FY 06			
9523C				
Alternative composition, low cost pipe for shipboard	1.700			

(U) Funding for FY 06 Alternative composition, low cost pipe for shipboard applications, Congressional add.

	FY 06			
9803N				
Flash detection system for NAVY 501 Shipboard eng	1.500			

(U) Funding for FY 06 Flash detection system for Navy 501 shipboard engines, Congressional add.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	9999/ Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9804N				
HTS AC synchronous propulsion motor	4.000			

Funding for FY 06 HTS AC synchronous propulsion motor, Congressional add.

	FY 06			
9805N				
Integr power distribution sys for next gen all-elec shp	3.000			

Funding for FY 06 Integrated power distribution system for next generation all electric ship, Congressional add.

	FY 06			
9806N				
MTTC/IPI and National Surface Treatment Center	7.000			

Funding for FY 06 MTTC/IPI and National Surface Treatment Center, Congressional add.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	9999/ Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9807N				
Smart machinery spaces system	3.950			

Funding for FY 06 Smart machinery spaces system, Congressional add.

	FY 06			
9808N				
Water mist fire protection systems	1.000			

Funding for FY 06 Water mist fire protection systems, Congressional add.
