						DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMEN	-		
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5				PE 0604300N - DE	O(X) Total Ship Sys	tems Engineering	
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	1,130.307	1,139.993	817.528	656.837	697.041	885.407	851.458
2464 / DD(X) System Design, Development and Int	924.109	1,012.194	741.779	422.802	320.706	366.114	392.191
2466 / Multi-Function Radar	12.054	0.000	0.000	0.000	0.000	0.000	0.000
2735 / Volume Search Radar	59.850	9.931	5.076	0.000	0.000	0.000	0.000
3105 / BLK II Seeker Technology Dev.	0.000	0.000	0.000	45.940	76.531	88.887	76.699
3106 / Combat Systems Integration	0.000	0.000	14.370	37.704	64.095	126.391	92.554
3107 / CG (X) Development	0.000	29.658	9.282	102.577	187.069	254.605	239.731
4009 / Advanced Gun System (AGS)	61.528	46.110	47.021	47.814	48.640	49.410	50.283
4010 / Integrated Power System (IPS)*	62.679	0.000	0.000	0.000	0.000	0.000	0.000
9376 / Alternative Engine	9.124	0.000	0.000	0.000	0.000	0.000	0.000
9554 / Naval Smartship	0.963	0.000	0.000	0.000	0.000	0.000	0.000
9999/ Undistributed RDTE,N Congressional Adds	0.000	42.100	0.000	0.000	0.000	0.000	0.000

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This Program Element (PE) provides funds for development of the DD(X) Class of U. S. Navy surface combatants and CG(X) future cruiser development. The mission of the DD(X) class is to provide affordable and credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DD(X) will provide advanced land attack capability in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DD(X) will establish and maintain surface and sub-surface superiority, provide local air defense, and incorporate signature reduction to operate in all threat environments. DD(X) will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction. CG(X) development efforts will mature the CG(X) design through Milestone B.

### The following Congressional adds are contained in this Program Element:

- FY05 Congressional Adds:
- -Alternative Engine. Provides a system alternative for the lead ship power solution and will further enhance the GE engine design.
- -Naval Smartship. Funds development of a synthetic environment to simulate the effects of insertion of technology and/or new business processes where the crew is removed from a ship. FY06 Congressional Adds:
- -Project 9999-Congressional Adds:\$42.100- This project consists of the following FY 06 Congressional adds:Naval smartships, Wireless maritime inspection system, Floating area network, Permanent magnet motor, and CG(X) System Concept and design.
- \*FY05 Supplemental funding: \$5M provided for Permanent Magnet Motor

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Just	XHIBIT R-2a, RDT&E Project Justification					DATE:	
						February 2006	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ROGRAM ELEMENT NUMBER AND NAME PROJI				ER AND NAME	
RDT&E, N / BA-5	PE 0604300N - DI	PE 0604300N - DD(X) Total Ship Systems Engineering			2464 - DD(X) Syst	em Design, Develor	oment & Integration
COST (\$ in Millions	) FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	924.109	1,012.194	741.779	422.802	320.706	366.114	392.191
RDT&E Articles Qty							

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project encompasses DD(X) Phase IV development efforts required to deliver the Flight I DD(X) Class Ships. Major efforts include software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V) for software releases 4-6; continued hullform testing at NSWC-CD; conducting testing communication and sensor aperature cosite and electromagnetic interferance risk reductions testing for critical arrays; planning for IPS and ship control system testing and integration and tomahawk restrained firing test.

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:		
			February 2006	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME	
RDT&E, N /BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering	2464 - DD(X) System Design	n, Development & Integration	

#### B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	841.314	81.400	0.000
RDT&E Articles Quantity			

In FY05, efforts included construction and testing of the following Engineering Development Models (EDMs): hullform, Infrared mock-up, integrated deckhouse and apertures, total ship computing environment, integrated undersea warfare system, peripheral vertical launching system, automatic fire suppression system, the development and certification of software releases 2 and 3; a program level Critical Design Review (CDR); and preparation for a Milestone B decision. In FY06, conduct MFR at-sea testing and continue S-Band Radar development, integration and testing.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	721.733	604.896
RDT&E Articles Quantity			

Development of the DD(X) Flight I software, COTS/GOTS software acquisition, code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V). Development of a total system software architecture that defines the relationships and interfaces among the software segments, elements, components, and/or configuration items. Conduct the following events for the remaining software releases: Software Specification Review (S-SSR), Software Preliminary Design Review (S-PDR), Software Critical Design Review (S-CDR), Software Integration Readiness Review (SIRR), Test Readiness Review (TRR) and Software Certification Panel (SCP). Conduct all developmental software test planning, conduct, test data analysis and reporting in accordance with the DD(X) TEMP. Perform total ship system design analysis. Perform systems engineering, develop, and fully integrate into the DD(X) System an ES system for DD(X). Develop, implement, and qualify a system to to provide missile inertial mid-course guidance using Pre-Planned Product Improvement (P3I) uplink and terminal missile guidance using Interrupted Continuous Wave Illumination (ICWI). Systems engineering and development of an Anti-Tamper (AT) protection plan for DD(X).

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	209.061	136.883
RDT&E Articles Quantity			

Completion and testing of ship and warfare system engineering development models. Complete hullform testing at NSWC-Carderock. Planning for IPS and ship control system (SCS) testing and integration at NSWC-Philadelphia. Conduct communication and sense aperture cosite and electromagnetic interference risk reduction testing for critical arrays at the Wallops Island Test Facility. Conduct Tomahawk restrained firing test to verify Advanced Vertical Launching System (AVLS) protection measures. Conduct developmental testing and operation evaluation in accordance with TEMP. Conduct Live Fire Testing & vulnerability analysis in accordance with TEMP.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME
RDT&E, N / BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering	2464 - DD(X) System Design	n, Development & Integration

#### B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	10.436	0.000	0.000
RDT&E Articles Quantity			

Continued identification and risk mitigation efforts in high risk areas such as Manning, Life Cycle Engineering and Support (LCE&S), and Total Ship Computing. Continued Manning/Human Systems Integration (HSI) and LCE&S Integrated Product Teams (IPTs) to address the impact to the future Navy support infrastructure in these functional areas. Monitored the industry-developed risk watch list and evaluated as a mechanism for reporting risk metrics in DD(X) Aquisition reporting documentation. Reviewed and developed proposed policy changes as a result of how DD(X) will impact Navy manning and life cycle support structure. Established Executive Steering Groups to review/ monitor specific Phase III technology development focus areas: Integrated Power System (IPS) and propulsion, Radar Suite and Software.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	54.934	0.000	0.000
RDT&E Articles Quantity			

Continued support of the DD(X) Technical Team. The Technical Team provides the expertise to evaluate / support the DD(X) industry design in the areas of Combat Systems; Hull, Mechanical and Electrical; Command, Control, Communication and Computers; Modeling and Simulation; Total Ship Computing, and Test and Evaluation. Team reviewed and certified the DD(X) Design Agent software development. This task concluded with contract Phase III in FY05.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	17.425	0.000	0.000
RDT&E Articles Quantity			

The DD(X) LFT&E Program focused on the following areas: Mission Recoverability, Magazine Protection, Damaged Seaway Survival, Selected Equipment Vulnerability, and Advanced Weapons Threat Effects. These areas addressed critical elements of DD(X) System survivability as defined in the Test and Evaluation Master Plan (TEMP) 1560, the LFT&E Management Plan, and the Operational Requirements Document (ORD). In FY05, Completed the Vulnerability Assessment Report (VAR) for the DD(X) Phase III prior to the DD(X) CDR.

R-1 SHOPPING LIST - Item No.

#### CLASSIFICATION:

IBIT R-2a, RDT&E Project Justification					DATE:	February 2006
OPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NUMBER	AND NAME	rebruary 2006
&E, N / BA-5	PE 0604300N - DD(X) Total Ship				D(X) System Design, Development & Integration	
C. PROGRAM CHANGE SUMMARY:	, , , ,	, ,		, , ,	3 / 1	<u> </u>
Funding:	FY 2005	FY 2006	FY 2007			
FY 2006 President's Budget:	978.846	1,027.787	741.974			
FY 2007 President's Budget:	924.109	1,012.194	741.779			
Total Adjustments	-54.737	-15.593	-0.195			
Summary of Adjustments						
Rescissions		-10.746				
Inflation		10.7 10	3.294			
Other General Provisions	-24.486	-4.847	-3.110			
Warfare Center Rates	24.400	7.0-7	-0.436			
Fuel Rates			0.057			
Programmatic Changes	-30.251		0.007			
Subtotal	-54.737	-15.593	-0.195	-		
Schedule: Not Applicable						
Technical:						
Not Applicable						
• •						

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Pro	ject Justification		DATE:
			February 2006
APPROPRIATION/BUDGET ACT	TIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering	2464 - DD(X) System Design, Development & Integration
D OTHER PROGRAM FI	LINDING SUMMARY		

Tο

Total

								10	iotai
Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Cost
PE 0603513N / Shipboard Sys Component Dev	44.282	50.918	14.135	16.686	16.828	16.983	17.161	CONT	CONT
BLI 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:

DD(X) Phase IV includes the continuation of warfare system development, integration and testing from Phase III, as well as ship detail design and construction. The Navy intends to award contracts to BIW and NGSS for detail design and construction of a lead ship at each yard. It is planned that the Phase IV detail design will be contracted for on a Cost Plus Award Fee (CPAF) basis, and that ship construction efforts for the lead ships will be on a Cost Plus Incentive Fee (CPIF) basis with additional performance incentives. The Acquisition Strategy Report (ASR) reflecting the dual lead ship strategy was approved at the DD(X) Milestone B decision in November 2005.

#### F. MAJOR PERFORMERS:

Major Contractors - Raytheon, Lockheed Martin, BAE, Northrop Grumman Ship Systems, BIW Government Field Activities - NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme Universities - John Hopkins University, Applied Physics Lab (APL/JHU)

#### CLASSIFICATION:

									DATE:						
Exhibit R-3 Cost Analysis (page	1)								F	ebruary 200	06				
APPROPRIATION/BUDGET ACTIVITY	·	-	PROGRAM ELE	MENT			PROJECT NU	MBER AND N	AME						
RDT&E, N / BA-5			PE 0604300N -	DD(X) Total Sh	nip Systems En	gineering	2464 - DD(X) S	2464 - DD(X) System Design, Development & Integration							
, and the second	Contract Method & Type	Performing Activity & Location		-	FY 05	FY 05 Award Date (1)	FY 06	FY 06 Award Date (1)	FY 07	FY 07 Award Date (1)			Target Value of Contract		
Initial System Concepts - Phase I	ОТА	DD(X) Industry	/ Team	54.800	0.000	N/A	0.000	N/A	0.000	N/A	0.000	54.800	54.800		
Initial System Design - Phase II	OTA	DD(X) Industry	/ Team	139.919	0.000	N/A	0.000	N/A	0.000	N/A	0.000	139.919	139.919		
Primary H/W Development- Phase III	CPAF	DD(X) Design	Agent (NGSS)	1,305.071	822.623	N/A	123.700	1QFY06	0.000	N/A	0.000	2,251.394	2,251.394		
Ship Integration Development Phase IV	CPAF	DD(X) Dev & 7	Test (Raytheon)				670.000	1QFY06	665.000	1QFY07	CONT.	CONT.			
Ship Suitability						<u> </u>						<u> </u>			
Systems Engineering												<u> </u>			
Training Development						<u> </u>						<u> </u>			
Licenses															
Tooling												<u></u>			
GFE	<u> </u>														
Award Fees												 [			
Subtotal Product Development				1,499.790	822.623		793.700		665.000		CONT.	CONT.	2,446.113		
		·		·	·	·		·	·						

Remarks: (1) The Navy awarded letter contracts to Raytheon on 25 May 05 and UDLP 23 May 05 to continue DD(X) development in accordance with the Acquisition Decision Memorandum signed on 20 April 05.

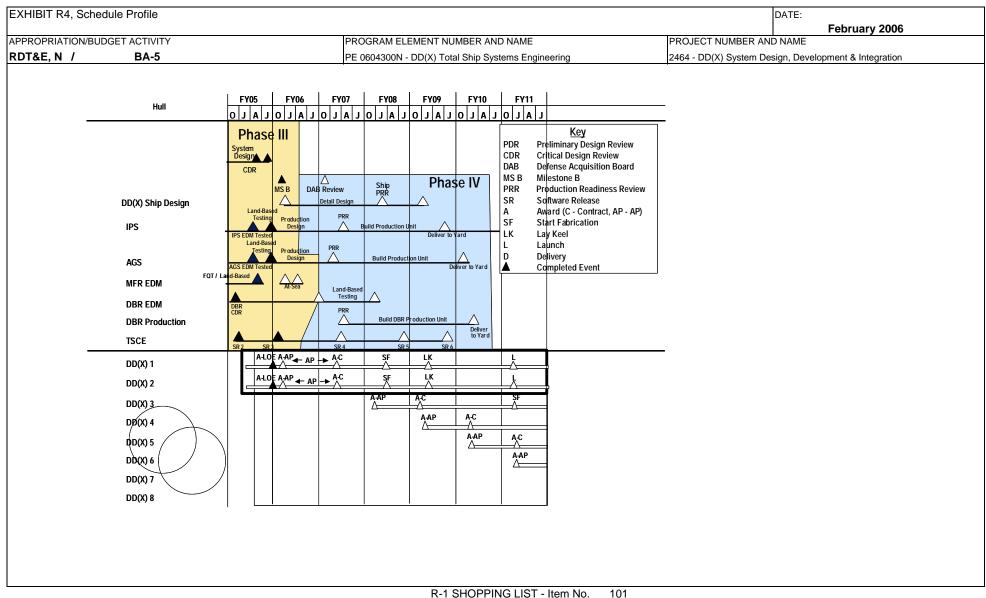
Development Support								0.000
Software Development								0.000
Training Development								0.000
Integrated Logistics Support								0.000
Configuration Management								0.000
Technical Data								0.000
GFE								0.000
Award Fees								0.000
Subtotal Support		0.000	0.000		0.000	0.000	0.000	0.000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

Remarks: Support costs are included in the Development contract costs.

#### CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page APPROPRIATION/BUDGET ACTIVITIES	e 2)	IDDOOD AM E	LEMENT			IDDO IECT NII	IMBER AND N		ebruary 20	06		
RDT&E. N / BA-5	T	PROGRAM E	LEMENT I - DD(X) Total	Chin Cyatama E	Enginooring			n, Development	9 Intogration			
Cost Categories	Contract	Performing	Total		FY 05	2464 - DD(X)	FY 06		FY 07			
Cook Catogorios	Method	Activity &	PY s	FY 05	Award	FY 06	Award	FY 07	Award	Cost to	Total	Target Value
	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Live Fire Test & Evaluation	OTA	DD(X) Industry Teams	4.875	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.875	4.875
Live Fire Test & Evaluation	CPAF	DD(X) Design Agent	4.100	41.700	1QFY05	0.000	N/A	0.000	N/A	0.000	45.800	45.800
Live Fire Test & Evaluation	CPAF	Raytheon	0.000	0.000	N/A	27.100	1QFY06	41.000	1QFY07	CONT	CONT	
Live Fire Test & Evaluation	WR	NSWC CD Bethesda MD	22.733	0.000	N/A	0.000	N/A	0.000	N/A	0.000	22.733	
Live Fire Test & Evaluation	WR	NSWC DD Dahlgren VA	3.400	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.400	
Live Fire Test & Evaluation	Various	Various	16.176	4.200	1QFY05	12.000	1QFY06	0.000	N/A	CONT	CONT	
GFE												
Award Fees												
Subtotal T&E			51.284	45.900		39.100		41.000		CONT	CONT	50.675
Remarks:	004/550	Jan	05.007	0.000	1 1/4	0.000	L 1/2	1 0000	N/A	1 0000	05.007	Ţ
Contractor Engineering Support	GSA/FFP	Anteon Arlington VA	25.397	0.000		0.000		0.000	N/A	0.000	-	<del> </del>
	GSA	GRCI, Falls Church VA	8.361	0.000	N/A	0.000		0.000	N/A	0.000		<del>                                     </del>
	CPAF	Seaport, NAVSEA	0.000	7.080	1QFY05	18.500		3.000	1QFY07	CONT	CONT	
	Misc	Various	9.999			10.400		0.000	1QFY07	CONT	CONT	<del>                                     </del>
Government Engineering Support	WR	NSWC DD Dahlgren VA	65.374	12.076		28.600		10.200	1QFY07	CONT	CONT	<del>                                     </del>
	WR	NSWC CD Bethesda MD	36.848	13.247	1QFY05	25.000		8.100	1QFY07	CONT	CONT	<del>                                     </del>
	WR	NSWC CR Crane IN	5.325	0.576	1QFY05	7.650		3.000	1QFY07	CONT	CONT	<u> </u>
	WR	NSWC PHD Pt Hueneme CA	9.096	1.349	1QFY05	18.650		4.000	1QFY07	CONT	CONT	<del> </del>
	WR	SSCSD Dan Diego CA	8.257	1.185	1QFY05	8.690	1QFY06	1.500	1QFY07	CONT	CONT	<u> </u>
	WR	NUWC/N Newport RI	5.525	1.025		9.500		1.000	1QFY07	CONT	CONT	<u> </u>
	WR	NSWC/PC Panama City, FL	2.132			10.600		0.000	1QFY07	CONT	CONT	<u> </u>
	Various	Other Govt Activities	13.842	5.019	1QFY05	20.000		0.000	1QFY07	CONT	CONT	
Program Management Support	Various	Various	15.488	3.154	1QFY05	10.107		0.000	1QFY07	CONT	CONT	
Travel	Various	Various	3.112		Various	1.500		0.779	1QFY07	CONT	CONT	
Labor (Research Personnel)	CPFF	APL/JHU Laurel MD	18.514	6.615	1QFY05	10.197	1QFY06	4.200	1QFY07	CONT	CONT	<del>                                     </del>
SBIR Assessment	Various	Various									2017	<del> </del>
Subtotal Management			227.270	55.586		179.394		35.779		CONT	CONT	
Remarks:												
Total Cost			1,778.344	924.109		1,012.194		741.779		CONT	. CONT.	2,496.788
Remarks:												

#### **CLASSIFICATION:**



### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail	DATE: February 2006						
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	AENIT		IDDO IECT NII	JMBER AND N	ebruary 200	סע
RDT&BA-5	PE 0604300N - D						
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Milestone B		1Q					
Critical Design Review	4Q						
Software Release SR3		1Q					
Software Release SR4			3Q				
Software Release SR5				4Q			
Software Release SR6					4Q		

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification		DATE:					
	February 2006						
APPROPRIATION/BUDGET ACTIVITY	ER AND NAME						
RDT&E, N / BA-5	ion Radar (MFR)						
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	12.054	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty							

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides funds for the development of the Multi-Function Radar (MFR) in association with DD(X). This provides DD(X) and other applicable surface ships with an affordable, high performance radar for ship defense well into the next century. This system is based on solid state, active array radar technology and will provide search, detect, track, and weapon control functions while dramatically reducing manning and life-cycle costs associated with multiple systems that perform these functions today. The MFR will achieve a level of force protection that greatly enhances ship defense capability against all threats envisioned in the littoral environment. A Test Article was delivered to Wallops Island in FY 03 to support Developmental Test/Operational Assessment (DT/OA) land-based and at-sea testing.

R-1 SHOPPING LIST - Item No.

101

Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2)

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justifica	tion			DATE: February 2006
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	BER AND NAME	PROJECT NUMBER AI	
T&E, N / BA-5	PE 0604300N - DD(X) Total	Ship Systems Engineer	ng   2466 - Multi-Function R	adar (MFR)
Accomplishments/Planned Program			-	
	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	7.588	0.000	0.000	
RDT&E Articles Quantity				
following efforts: (1) high speed automated ma	anufacturing equipment, (2) test equi ration management. Provide support	n, including the develor pment and associated t	ment, fabrication, document est program sets, (3) system	oversight and assessment of MFR E&MD efforts ation and engineering support associated with the sengineering and test engineering support and (4) doverall ship systems. Provide engineering support
following efforts: (1) high speed automated material failure analysis, parts engineering and configu	anufacturing equipment, (2) test equi ration management. Provide support	n, including the develor pment and associated t	ment, fabrication, document est program sets, (3) system	ation and engineering support associated with the sengineering and test engineering support and (4)
following efforts: (1) high speed automated material failure analysis, parts engineering and configu	anufacturing equipment, (2) test equi ration management. Provide supportion system for DD(X).	on, including the develop pment and associated t t for integration of MFR	ment, fabrication, documents transfer strongram sets, (3) systems to the DD(X) radar suite an	ation and engineering support associated with the sengineering and test engineering support and (4)
following efforts: (1) high speed automated magnitude analysis, parts engineering and configure for transition of MFR EDM to the MFR product	anufacturing equipment, (2) test equi ration management. Provide supportion system for DD(X).	on, including the development and associated to for integration of MFR	ment, fabrication, documents program sets, (3) systems to the DD(X) radar suite an	ation and engineering support associated with the sengineering and test engineering support and (4)
following efforts: (1) high speed automated magnitude analysis, parts engineering and configure for transition of MFR EDM to the MFR product  Accomplishments/Effort/Subtotal Cost  RDT&E Articles Quantity	anufacturing equipment, (2) test equiration management. Provide supportion system for DD(X).  FY 05 2.936	en, including the development and associated to for integration of MFR  FY 06  0.000	ment, fabrication, documents to program sets, (3) systems to the DD(X) radar suite an FY 07 0.000	ation and engineering support associated with the sengineering and test engineering support and (4) doverall ship systems. Provide engineering support
following efforts: (1) high speed automated magnitude analysis, parts engineering and configure for transition of MFR EDM to the MFR product  Accomplishments/Effort/Subtotal Cost  RDT&E Articles Quantity	anufacturing equipment, (2) test equiration management. Provide supportion system for DD(X).  FY 05 2.936	en, including the development and associated to for integration of MFR  FY 06  0.000	ment, fabrication, documents to program sets, (3) systems to the DD(X) radar suite an FY 07 0.000	ation and engineering support associated with the sengineering and test engineering support and (4)
following efforts: (1) high speed automated magnitude analysis, parts engineering and configured for transition of MFR EDM to the MFR product  Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity  Evaluation, planning, documentation, scheduli	anufacturing equipment, (2) test equiration management. Provide supportion system for DD(X).  FY 05 2.936  ng and conducting of Developmental	rn, including the development and associated to for integration of MFR  FY 06  0.000  Test / Operational Associated to the formula of the for	ment, fabrication, documentate program sets, (3) systems to the DD(X) radar suite an FY 07 0.000 ssment. Hardware / Softwar	ation and engineering support associated with the sengineering and test engineering support and (4) doverall ship systems. Provide engineering support
following efforts: (1) high speed automated magnitude analysis, parts engineering and configured for transition of MFR EDM to the MFR product  Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity  Evaluation, planning, documentation, scheduli	anufacturing equipment, (2) test equiration management. Provide supportion system for DD(X).  FY 05 2.936	en, including the development and associated to for integration of MFR  FY 06  0.000	ment, fabrication, documents to program sets, (3) systems to the DD(X) radar suite an FY 07 0.000	ation and engineering support associated with the sengineering and test engineering support and (4) doverall ship systems. Provide engineering support

R-1 SHOPPING LIST - Item No.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification					DATE:	February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NUMBER AND N	AME	rebruary 2006
RDT&E, N / BA-5	PE 0604300N - DD(X) Total Ship			2466 - Multi-Function Radar		
C. PROGRAM CHANGE SUMMARY:		,			,	
Funding:	FY 2005	FY 2006	FY 2007			
FY 2006 President's Budget:	12.164	0.000	0.000			
FY 2007 President's Budget:	12.054	0.000	0.000			
Total Adjustments	-0.110	0.000	0.000			
Summary of Adjustments						
Other General Provisions	-0.110					
Subtotal	-0.110	0.000	0.000			
Schedule:						
Not Applicable						
Technical:						
Not Applicable						
11						
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#### 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-5	PE 0604300N - DD(X) Total Ship Systems Engineering	2466 - Multi-Function Radar (MFR)	
D. OTHER RECORDAN FUNDING SUMMARY.			

#### D. OTHER PROGRAM FUNDING SUMMARY:

								10	rotai
Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Cost
PE 0603513N / Shipboard Sys Component Dev	44.282	50.918	14.135	16.686	16.828	16.983	17.161	CONT	CONT
BLI 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:

DD(X) Phase IV includes the continuation of warfare system development, integration and testing from Phase III, as well as ship detail design and construction. The Navy intends to award contracts to BIW and NGSS for detail design and construction of a lead ship at each yard. It is planned that the Phase IV detail design will be contracted for on a Cost Plus Award Fee (CPAF) basis, and that ship construction efforts for the lead ships will be on a Cost Plus Incentive Fee (CPIF) basis with additional performance incentives. The Acquisition Strategy Report (ASR) reflecting the dual lead ship strategy was approved at the DD(X) Milestone B decision in November 2005.

#### F. MAJOR PERFORMERS:

DD(X) Design Agent - Northrop Grumman Ship Systems Major Subcontractors - Raytheon Government Field Activities -Universities -

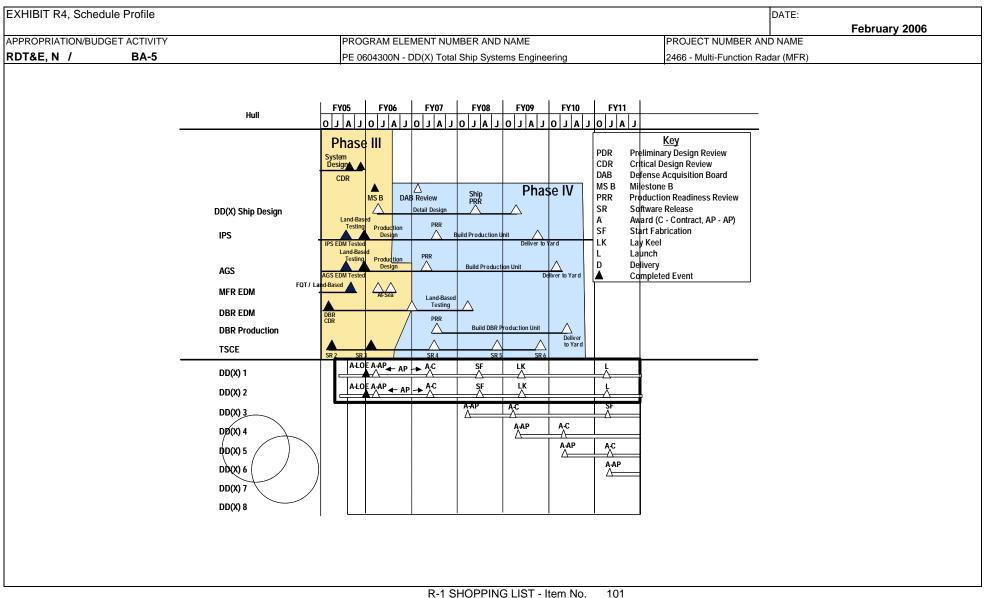
#### CLASSIFICATION:

									DATE:				
Exhibit R-3 Cost Analysis (pa	ae 1)								February 20	006			
Exhibit R-3 Cost Analysis (pa APPROPRIATION/BUDGET ACTIV	/ITY		PROGRAM E	LEMENT				PROJECT N	NUMBER AND NA				
RDT&E, N / BA-5				I - DD(X) Total	Ship Systems	s Engineering			-Function Radar (				
Cost Categories	Contract	Performing		Total	1 -7	FY 05		FY 06		FY 07			
	Method	Activity &		PY s	FY 05	Award	FY 06	Award		Award	Cost to		Target Value
	& Type	Location		Cost	Cost	Date (1)	Cost	Date (1)	Cost	Date (1)	Complete		of Contract
Primary Hardware Development	CPAF/IF	Prime E&MD	(Raytheon)	197.153	0.00		0.00		0.000	N/A	0.000	197.153	197.153
	CPAF	DD(X) Design	Agent	24.579	0.00	00 N/A	0.00	N/A	0.000	N/A	0.000	24.579	24.579
	CP	Various		12.414	0.00	00 N/A	0.00	N/A	0.000	N/A	0.000	12.414	
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				234.146	0.00	00	0.00	)	0.000		0.000		234.146
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	0.00	00	0.00		0.000		0.000	0.000	
Remarks:													
				D 4 6116 -	DINIC : :S=	Itom No	101						

#### **CLASSIFICATION:**

								DATE:				
Exhibit R-3 Cost Analysis (pag	ne 2)							February 2	006			
APPROPRIATION/BUDGET ACTIV	ITY	PROGRAM E	FMFNT				PROJECT N	JMBER AND N				
RDT&E, N / BA-5				Ship Systems I	Engineering			Function Radar				
Cost Categories	Contract	Performing	Total	]	FY 05		FY 06		FY 07			
Ü			PY s	FY 05	Award	FY 06	Award	FY 07	Award	Cost to	Total	Target Value
	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Developmental Test & Evaluation	Various	Various	11.661	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.661	
		SCSC Wallops Island VA	3.544	1.375	11/04	0.000		0.000	N/A	0.000	4.919	4.919
	SS/CPFF	JHU/APL Laurel MD	3.006	0.080	11/04	0.000	N/A	0.000	N/A	0.000	3.086	
	WX	NSWC PHD Pt Hueneme CA	3.100	0.976	11/04	0.000	N/A	0.000	N/A	0.000	4.076	
	WX	NSWC DD Dahlgren VA	2.941	0.434	11/04	0.000	N/A	0.000	N/A	0.000	3.375	
	WR/RC	NAWC Pt Mugu CA	1.921	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.921	
	WX/RX	NWSC Corona CA		0.080	11/04	0.000	N/A	0.000	N/A	0.000	0.080	
Subtotal T&E			26.173	2.945		0.000		0.000		0.000	29.118	4.919
Contractor Engineering Support												
Government Engineering Support	WR	NSWC DD Dahlgren VA	7.077	2.206	11/04	0.000	N/A	0.000	N/A	0.000	9.283	
	WR	NSWC PHD Pt Hueneme CA	4.164	1.169	11/04	0.000	N/A	0.000	N/A	0.000	5.333	
	SS/CPFF	APL/JHU Laurel MD	3.672	1.680	11/04	0.000	N/A	0.000	N/A	0.000	5.352	
	WR	Various	10.907	2.524	11/04	0.000	N/A	0.000	N/A	0.000	13.431	
Program Management Support	C/CPFF	Various	6.906	1.530	11/04	0.000	N/A	0.000	N/A	0.000	8.436	
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			32.726	9.109		0.000		0.000		0.000	41.835	
Remarks:												
Total Cost			293.045	12.054		0.000		0.000		0.000	305.099	239.065
Remarks:						404						

#### **CLASSIFICATION:**



### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail	DATE: February 2006						
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NUMBER AND NAME		
RDT8BA-5	PE 0604300N	- DD(X) Total S	Ship Systems E	2466 - Multi-Function Radar (MFR)			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Factory Qualification Testing (FQT)/Land Based Testing	3Q	20.00					
At-Sea		2Q-3Q					
_							
	<u> </u>			101			

R-1 SHOPPING LIST - Item No.

101

**UNCLASSIFIED** 

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification	DATE:						
	February 2006						
APPROPRIATION/BUDGET ACTIVITY	ER AND NAME						
RDT&E, N / BA-5	PE 0604300N - DE	O(X) Total Ship Sys	2735 - Volume Sea	arch Radar (VSR)			
COST (\$ in Millions)	FY 2005 FY 2006 FY 2007 FY 20				FY 2009	FY 2010	FY 2011
Project Cost	59.850	9.931	5.076	0.000	0.000	0.000	0.000
RDT&E Articles Qty		1					

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides funds for the development of the S-Band Volume Search Radar (VSR) in association with DD(X). This provides DD(X) and other applicable surface ships with an affordable, high performance air search radar. This system is based on solid state, active array radar technology and will provide search, detect, and tracking abilities, while dramatically reducing manning and life-cycle costs associated with multiple systems that perform these functions today. VSR provides long range above-the-horizon surveillance and timely cueing to Multi-Function Radar (MFR). A Test Article will be available in FY 06 to support Developmental Test/Operational Assessment (DT/OA) land-based and at-sea testing.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification				DATE:
			February	2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	IAME	
RDT&E, N /	PE 0604300N - DD(X) Total Ship Systems Engineering	2735 - Volume Search Rada	ar (VSR)	

#### **B.** Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	57.715	6.300	1.818
RDT&E Articles Quantity			

In Phase III, DD(X) Design Agent finalized S-Band VSR design and procurement Engineering Development Model (EDM) hardware and began fabrication. Also began test and evaluation planning. In FY06, delivery of EDM to Wallops to conduct VSR Factory Qualification Testing and prepare for Land Based Testing in FY07.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.135	3.631	2.658
RDT&E Articles Quantity			

Government Engineering Services and Program Management support for Engineering and Manufacturing Development (E&MD). Perform oversight and assessment of VSR E&MD efforts including Test and Evaluation. Support VSR Land Based Testing.

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

Provide Program Management in support of the above milestones.

R-1 SHOPPING LIST - Item No.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification					DATE:	February 2006		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NUMBER AND N	AME			
RDT&E, N / BA-5	PE 0604300N - DD(X) Total Ship 9			2735 - Volume Search Rada				
C. PROGRAM CHANGE SUMMARY:	•							
Funding:	FY 2005	FY 2006	FY 2007					
FY 2006 President's Budget:	57.118	10.082	5.071					
FY 2007 President's Budget:	59.850	9.931	5.076					
Total Adjustments	2.732	-0.151	0.005					
Summary of Adjustments								
Rescission		-0.105						
Inflation			0.023					
Other General Provisions	-1.436	-0.046	-0.018					
Programmatic Changes	4.168	0.000						
Subtotal	2.732	-0.151	0.005					
Schedule:								
Not Applicable								
Technical:								
Not Applicable								
1 tot / topilodolo								
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#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME PROJECT NUMBER	ER AND NAME
RDT&E, N / BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering 2735 - Volume Sea	arch Radar (VSR)
D. OTHER PROGRAM FUNDING SUMMARY:		To Total
Line Item No. & Name         FY 20           PE 0603513N / Shipboard Sys Component Dev         44.2           BLI 211900 / SCN         304.0	2 50.918 14.135 16.686 16.828 16.983	FY 2011         Complete         Cost           17.161         CONT         CONT           2,308.481         CONT         CONT

#### E. ACQUISITION STRATEGY:

DD(X) Phase IV includes the continuation of warfare system development, integration and testing from Phase III, as well as ship detail design and construction. The Navy intends to award contracts to BIW and NGSS for detail design and construction of a lead ship at each yard. It is planned that the Phase IV detail design will be contracted for on a Cost Plus Award Fee (CPAF) basis, and that ship construction efforts for the lead ships will be on a Cost Plus Incentive Fee (CPIF) basis with additional performance incentives. The Acquisition Strategy Report (ASR) reflecting the dual lead ship strategy was approved at the DD(X) Milestone B decision in November 2005.

#### F. MAJOR PERFORMERS:

DD(X) Design Agent - Northrop Grumman Ship Systems

Major Subcontractors - Raytheon, Lockheed Martin

Government Field Activities - NAWC China Lake, NAWC Pt Mugu, NAWC TSD, NSWC Carderock, NSWC Crane, NSWC Dahlgren, NSWC Newport, NSWC Panama City, NSWC Port Hueneme, Naval Research Laboratory, SPAWAR Systems Center

Universities - John Hopkins University / Applied Physics Laboratory, Applied Research Labs at University of Texas, University of Washington and Penn State University, Georgia Tech Research Institute

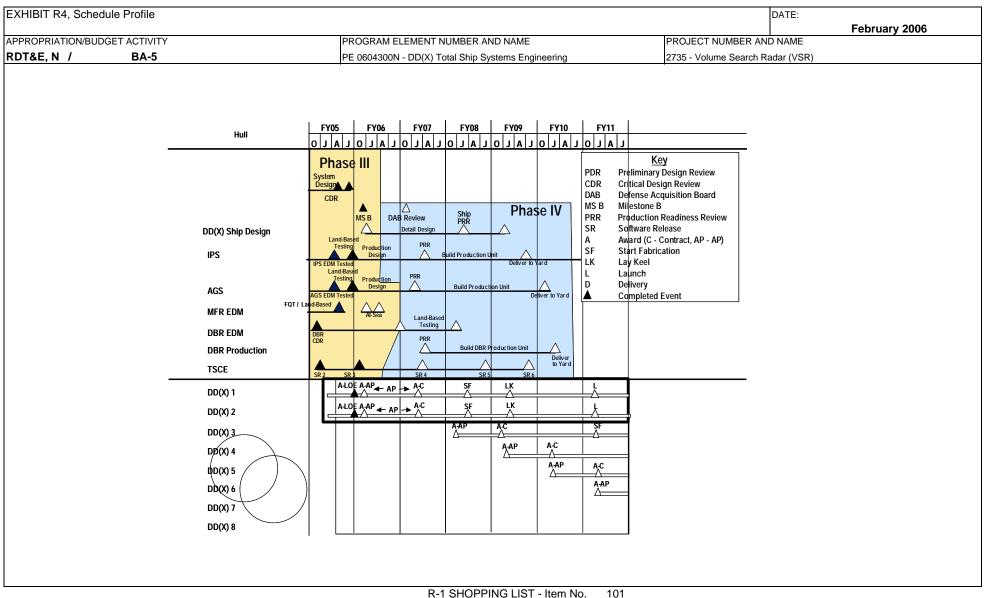
#### CLASSIFICATION:

xhibit R-3 Cost Analysis (page 1)									DATE: February 2006					
APPROPRIATION/BUDGET ACTI			PROGRAM E	I EMENT					PROJECT NUMBER AND NAME					
RDT&E, N / BA-5	VIII				Shin Systems I	Engineering			2735 - Volume Search Radar (VSR)					
Cost Categories	Contract	Performing	1. 2 000 100011	Total   FY 05   FY 06   FY 06   FY 06   FY 06   FY 07   FY 08   FY 0					2700 VOIGITI	FY 07	1			
	Method	Activity &		PY s	FY 05	Award	FY 06	Award	FY 07	Award	Cost to	Total	Target Valu	
	& Type	Location		Cost	Cost	Date (1)	Cost	Date (1)	Cost	Date (1)	Complete	Cost	of Contract	
Primary Hardware Development	OTA	DD(X) Industr	y Team	50.000	0.000	N/A	0.00	0 <b>N</b> /A	0.000	N/A	0.000	50.000	50.0	
	CPAF	DD(X) Design	Agent (NGSS)	118.071	57.715	1QFY05	6.30	0 1QFY06	0.000	N/A	0.000	182.086	182.0	
	CPAF	Raytheon (Bridge)  Lockheed Martin SBAR		0.000	0.000	N/A	0.00	0 N/A	1.800	1QFY07	0.000	1.800	1.8	
Ship Integration	CPAF	N00024-02-C-	-5321	6.000	0.000	N/A	0.00	0 N/A	0.000	N/A	0.000	6.000	6.0	
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				174.071	57.715		6.30	0	1.800	)	0.000	239.886	239.8	
Subtotal Product Development				174.071	57.715		6.30	0	1.800	<u> </u>	0.000	239.886	239.8	
Development Support				174.071	57.715		6.30	0	1.800		0.000	0.000		
Development Support Software Development				174.071	57.715		6.30	0	1.800		0.000	0.000		
Subtotal Product Development  Development Support Software Development Training Development				174.071	57.715		6.30	0	1.800		0.000	0.000		
Development Support Software Development				174.071	57.715		6.30	0	1.800		0.000	0.000		
Development Support Software Development Training Development				174.071	57.715		6.30	0	1.800		0.000	0.000 0.000 0.000		
Development Support Software Development Training Development Integrated Logistics Support Configuration Management				174.071	57.715		6.30	0	1.800		0.000	0.000 0.000 0.000		
Development Support Software Development Training Development Integrated Logistics Support				174.071	57.715		6.30	0	1.800		0.000	0.000 0.000 0.000 0.000 0.000		
Development Support Software Development Training Development Integrated Logistics Support Configuration Management Technical Data				174.071	57.715		6.30	0	1.800		0.000	0.000 0.000 0.000 0.000 0.000		

#### CLASSIFICATION:

Activity & Location  SCSC Wallops Island VA  Various  NSWC DD Dahlgren VA  NSWC PHD Pt Hueneme CA	Total PY s	FY 05 Cost 0.000 0.000	FY 05 Award Date N/A N/A	PROJECT NU 2735 - Volume FY 06 Cost 0.000 0.000	e Search Rad FY 06 Award Date N/A N/A	NAME ar (VSR) FY 07	N/A	Cost to Complete  0.000 0.000 0.000	0.600 0.497	0.600
PE 0604300N  act Performing Activity & Location  SCSC Wallops Island VA  Various  NSWC DD Dahlgren VA  NSWC PHD Pt Hueneme CA	N - DD(X) Total Total PY's Cost 0.600 0.497 1.097	FY 05 Cost 0.000 0.000	FY 05 Award Date N/A N/A	2735 - Volume FY 06 Cost  0.000  0.000	e Search Rad FY 06 Award Date N/A N/A	FY 07 Cost 0.000 0.000	Award Date N/A N/A	0.000 0.000 0.000	0.600 0.497 1.097	of Contract 0.600 0.600
Activity & Location  SCSC Wallops Island VA  Various  NSWC DD Dahlgren VA  NSWC PHD Pt Hueneme CA	Total PY s Cost  0.600  0.497  1.097	FY 05 Cost 0.000 0.000	FY 05 Award Date N/A N/A	FY 06 Cost 0.000 0.000	FY 06 Award Date N/A N/A	FY 07 Cost 0.000 0.000	Award Date N/A N/A	0.000 0.000 0.000	0.600 0.497 1.097	of Contract 0.600 0.600
Activity & Location  SCSC Wallops Island VA  Various  NSWC DD Dahlgren VA  NSWC PHD Pt Hueneme CA	PY s Cost 0.600 0.497 1.097	FY 05 Cost 0.000 0.000 0.000	Award Date N/A N/A	FY 06 Cost 0.000 0.000	Award Date N/A N/A	FY 07 Cost 0.000 0.000	Award Date N/A N/A	0.000 0.000 0.000	0.600 0.497 1.097	of Contract 0.600 0.600
e Location  SCSC Wallops Island VA  IS Various  NSWC DD Dahlgren VA  NSWC PHD Pt Hueneme CA	0.600 0.497 1.097	0.000 0.000 0.000	Date N/A N/A	0.000	N/A N/A	0.000	N/A N/A	0.000	0.600 0.497 1.097	of Contract 0.600 0.600
NSWC DD Dahlgren VA NSWC PHD Pt Hueneme CA	1.097	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.097	0.600
NSWC DD Dahlgren VA NSWC PHD Pt Hueneme CA	1.097	0.000		0.000		0.000		0.000	1.097	0.600
NSWC PHD Pt Hueneme CA	3.706	0.000								
NSWC PHD Pt Hueneme CA	3.706	0.000								
NSWC PHD Pt Hueneme CA	1		N/A	0.800	N/A	0.848	11/06	0.000	5.324	
NSWC PHD Pt Hueneme CA	1		N/A	0.800	N/A	0.818	11/06	0.000	5.324	
NSWC PHD Pt Hueneme CA	1		N/A	0.800	N/A	0.818	11/06	0.000	5.324	
	1 630					0.010				
	1.000	0.000	N/A	0.300	N/A	0.300	11/06	0.000	2.230	
Various	13.107	2.135	11/04	1.931	N/A	1.558	11/06	0.000	18.731	
Various	2.873	0.000	N/A	0.600	N/A	0.600	11/06	0.000	4.073	
	21.316	2.135		3.631		3.276		0.000	30.358	
	196.484	59.850		9.931		5.076		0.000	271.341	240.486
	Various	21.316	21.316 2.135	21.316 2.135	21.316 2.135 3.631	21.316 2.135 3.631	21.316 2.135 3.631 3.276	21.316 2.135 3.631 3.276	21.316 2.135 3.631 3.276 0.000	21.316 2.135 3.631 3.276 0.000 30.358

#### **CLASSIFICATION:**



### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail	DATE:	DATE:						
			February 2006					
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NUMBER AND NAME 2735 - Volume Search Radar (VSR)			
RDT&E, N / BA-5	PE 0604300N	l - DD(X) Total	Ship Systems E	Engineering				
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
DBR CDR	1Q							
Land-Based Testing			1Q-4Q	1Q				
		<del> </del>						
		<u> </u>						

R-1 SHOPPING LIST - Item No.

101

**UNCLASSIFIED** 

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification	DATE:						
	February 2006						
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	R AND NAME					
RDT&E, N / BA-5	PE 0604300N - DE	O(X) Total Ship Sys	3106 - Combat Sys	106 - Combat Systems Integration			
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	0.000	14.370	37.704	64.095	126.391	92.554
RDT&E Articles Qty						_	

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG(X), the future cruiser, will focus on providing the Air and Missile Defense capabilities as part of the 21st Century family of surface combatants. CG(X) will replace the aging CG-47 class as they reach the end of their 35 year service life.

This project encompasses efforts for the integration of communications, electronics, command and control, weapons, surveillance and shipboard systems and combat system computer programs into the CG(X) class combat system. These integration efforts include systems engineering, analysis, computer program development/modification, interface design, technical documentation, combat system test site development and system testing to ensure fully functional combat systems integration.

R-1 SHOPPING LIST - Item No.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification	1			DATE:
				February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	IBER AND NAME	PROJECT NUMBER AND	NAME
RDT&E, N /	PE 0604300N - DD(X) Total	Ship Systems Engineering	3106 - Combat Systems In	itegration
B. Accomplishments/Planned Program				
	FY 05	FY 06	FY 07	7
Accomplishments/Effort/Subtotal Cost	0.000	0.000	8.650	
RDT&E Articles Quantity				
FY07: Commence system integration requiremen	nts studies and assess DD(X) con	mbat system component app	licability to CG(X).	
		T	1	_
	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.440	
RDT&E Articles Quantity				
FY07: Establish Technical Team responsible for p	participation, oversight and monit	oring of system integration e	ffort.	
	EV 05	FV 00	EV 07	$\neg$
Assampliahmenta/Effort/Cultitatal Cost	FY 05	FY 06	FY 07	$\dashv$
Accomplishments/Effort/Subtotal Cost	0.000	0.000	4.280	$\dashv$
RDT&E Articles Quantity				
EVOZ. O and at Milesters A server and is a deciral	ada a satura di a di Cita Cara da cada a		- # t -	
FY07: Conduct Milestone A preparations, to incl	ude contract solicitation develop	nent for systems integration	епопѕ.	

R-1 SHOPPING LIST - Item No.

### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE:
				February 2006
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELE	MENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5		PE 0604300N -	DD(X) Total Ship Systems Engineering	3106 - Combat Systems Integration
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2005	FY 2006	FY 2007	
FY 2006 President's Budget:	0.000	0.000	50.349	
FY 2007 President's Budget:	0.000	0.000	14.370	
Total Adjustments	0.000	0.000	-35.979	
Summary of Adjustments				
Inflation			0.167	
Other General Provisions			-2.487	
Warfare Center Rates			-0.001	
Programmatic Changes			-33.658	
Subtotal	0.000	0.000	-35.979	
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2	2006	
APPROPRIATION/BUDGET ACTIVITY		P	ROGRAM ELEI	MENT NUMBE	R AND NAME	P	ROJECT NUN	ABER AND N	JAME	 -
RDT&E, N / BA-5					p Systems Engi		106 - Combat			
RDTGE, IV 7		<u>'</u>	L 0004300IN - L	DD(X) Total On	p dysterns Engi	neening 5	100 - Combat	Oysterns inte	gradori	
D. OTHER PROGRAM FUNDING SUMMARY:								To	Total	
Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Cost	
BLI 211400 / SCN	0.000	0.000	0.000	0.000	0.000	0.000	3,234.957	CONT	CONT	
E. ACQUISITION STRATEGY:										
TBD										
. 22										
F. MAJOR PERFORMERS:										
Contractors - TBD										
Field Activities - NSWC Dahlgren, NSWC Pol	t Hueneme, NSWC Corona, N	SWC Carder	ock							
Universities - JHU/APL	,									

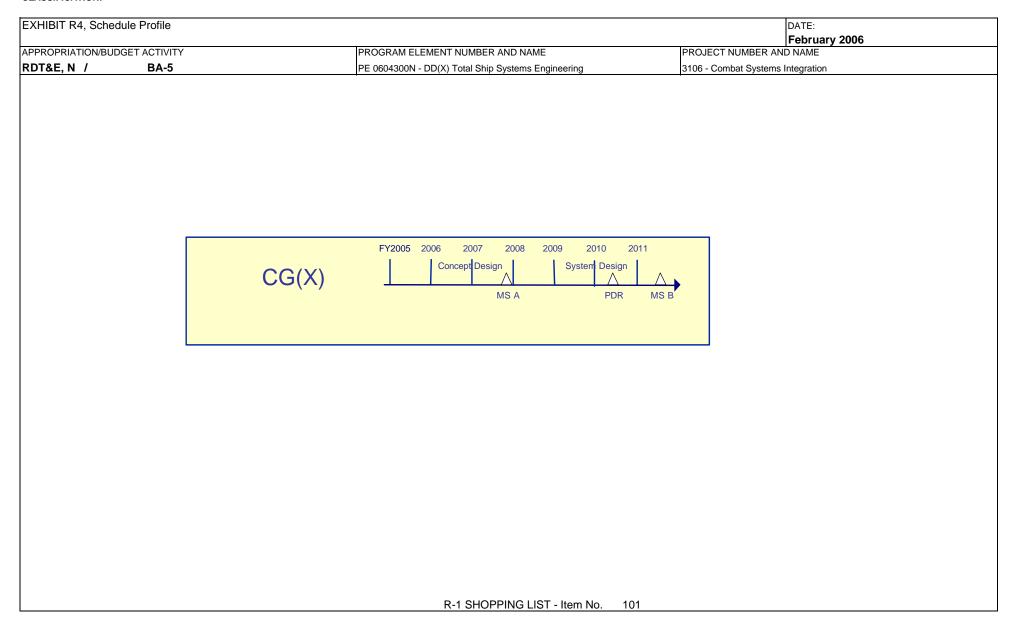
#### CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (pa	age 1)							February 2	2006			
APPROPRIATION/BUDGET ACTI	VITY							NUMBER AND N				
RDT&E, N / BA-5		1		_	1	,		mbat Systems Inte			1	1
Cost Categories	Contract	Performing	Total PY s	E)/ 05	FY 05	EV 00	FY 06	EV 07	FY 07	0	T-1-1	T()/-1
	Method & Type	Activity & Location	Cost	FY 05 Cost	Award Date (1)	FY 06 Cost	Award Date (1)	FY 07 Cost	Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	ατγρε	Location	COSt	Cost	Date (1)	COST	Date (1)	Cost	Date	Complete	0.000	
Primary Hardware Development											0.000	
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			0.000	0.000		0.000	)	0.000	)	0.000	1	
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 SHOP	PING LIST	- Item No.	101						

#### CLASSIFICATION:

	۵)							DATE:				
Exhibit R-3 Cost Analysis (page 1)							1	February 2				
APPROPRIATION/BUDGET ACTIV	/ITY							NUMBER AND N				
RDT&E, N / BA-5	10	I= .	<u> </u>		I=1.1=			mbat Systems Integ		1	T	_
Cost Categories	Contract Method	Performing Activity &	Total PY s	FY 05	FY 05 Award	FY 06	FY 06 Award		FY 07 Award	Cost to	Total	Target Value
	& Type	Location		Cost	Date	Cost	Date		Date	Complete		of Contract
Developmental Test Evaluation	и турс	Location	COST	Cost	Date	0031	Date	COST	Date	Complete	0.000	
Developmental rest Evaluation											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.00	0	0.000		0.000		
Subtotal T&E			0.000	0.000	<u>'I</u>	0.00	υ <u> </u>	0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	TBD	TBD						3.592	1QFY07	CONT	CONT	-
										CONT	CONT	
Government Engineering Support	TBD	TBD						10.778	1QFY07	CONT	CONT	
										CONT	CONT	
										CONT	CONT	
Program Management Support												
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.000	0.000	)	0.00	0	14.370		CONT	CONT	
Remarks:												
Total Cost			0.000	0.000	)	0.00	0	14.370		CONT	CONT	
Remarks:												

#### CLASSIFICATION:



### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:			
						February 2006			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU				
RDT&E, N / BA-5	PE 0604300N	- DD(X) Total	Ship Systems E	Engineering	3106 - Combat Systems Integration				
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011		
Milestone A			4Q	1Q					
Preliminary Design Review			40	IQ		1Q-3Q			
Milestone B						1404	4Q		
_					+				
					1				

R-1 SHOPPING LIST - Item No.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification						DATE:	
						February 2006	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ENT NUMBER ANI	O NAME		PROJECT NUMBE	R AND NAME	
RDT&E, N / BA-5	PE 0604300N - DE	O(X) Total Ship Sys	tems Engineering		3107 - CG (X) Dev	elopment	
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	29.658	9.282	102.577	187.069	254.605	239.731
RDT&E Articles Qty							

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG(X), the future cruiser, will focus on providing the Air and Missile Defense capabilities as part of the 21st Century family of surface combatants. CG(X) will replace the aging CG-47 class as they reach the end of their 35 year service life.

This project encompasses efforts for total ship system development and integration of Hull, Mechnical and Electrical (HM&E) and shipboard systems into the CG(X) class. These engineering development and integration efforts include systems engineering, analysis, computer program development, interface design, Engineering Development Models (EDMs), technical documentation and system testing to ensure a fully functional CG(X) system design. This project will mature the CG(X) design through several ship design cycles and baselines. Preparation and execution of a program level Preliminary Design Review (PDR) and Critical Design Review (CDR) will occur through these efforts.

R-1 SHOPPING LIST - Item No.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justifica	tion			DATE: February 2006
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	BER AND NAME	PROJECT NUMBER AN	
DT&E, N /	PE 0604300N - DD(X) Total	Ship Systems Engineeri	ng 3107 - CG (X) Developm	ent
Accomplishments/Planned Program	[· = *** · = = (· // · *** · ·		.g	<del></del>
	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	14.500	2.000	
RDT&E Articles Quantity	0.000	14.000	2.000	
11.1	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	6.500	1.500	
RDT&E Articles Quantity				
FY06: Conduct Concept Design model develo	FY 05	FY 06 8.658	FY 07	
A    -    -    -    -    -			5.782	
Accomplishments/Effort/Subtotal Cost	0.000	0.030		
Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity	0.000	0.000		

R-1 SHOPPING LIST - Item No.

Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2)

#### 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-5	PE 0604300N - DD(X) Total Ship Systems Engineering 3107 - CG (X) Development
C. PROGRAM CHANGE SUMMARY:	
Funding:	FY 2005 FY 2006 FY 2007
FY 2006 President's Budget:	0.000 30.110 60.035
FY 2007 President's Budget:	0.000 29.658 9.282
Total Adjustments	0.000 -0.452 -50.753
Summary of Adjustments	
Rescission	-0.315
Inflation	0.156
Other General Provisions	-0.137 -3.948
Programmatic Changes	0.000 -46.961
Subtotal	0.000 -0.452 -50.753
Schedule:	
Not Applicable	
Technical:	
Not Applicable	

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Proj	ect Justification								DATE: February 20	006	
APPROPRIATION/BUDGET ACT	IVITY		ΙP	ROGRAM ELE	MENT NUMBE	R AND NAME	P	ROJECT NUM	MBER AND NA	AME	
RDT&E, N / BA-5 PE 0604300N - DD(X) Total Ship Systems Engineering 3107 - CG (X) Develop											
RDTQL, N	BA-3		ļr	L 0004300IN - I	DD(X) Total Sili	p Systems Engi	ineering [3	107 - CG (X) L	Development		
D. OTHER PROGRAM FU	NDING SUMMARY:								То	Total	
Line Item No. & Name		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Cost	
BLI 211400 / SCN		0.000	0.000	0.000	0.000	0.000	0.000	3,234.957	CONT	CONT	
E. ACQUISITION STRATEG	Y:										
TBD											
F. MAJOR PERFORMERS:											
Contractors - TBD Field Activities - NSW Universities - JHU/A	VC Dahlgren, NSWC Port Hueneme, NS\ PL	WC Corona, N	SWC Cardero	ck							

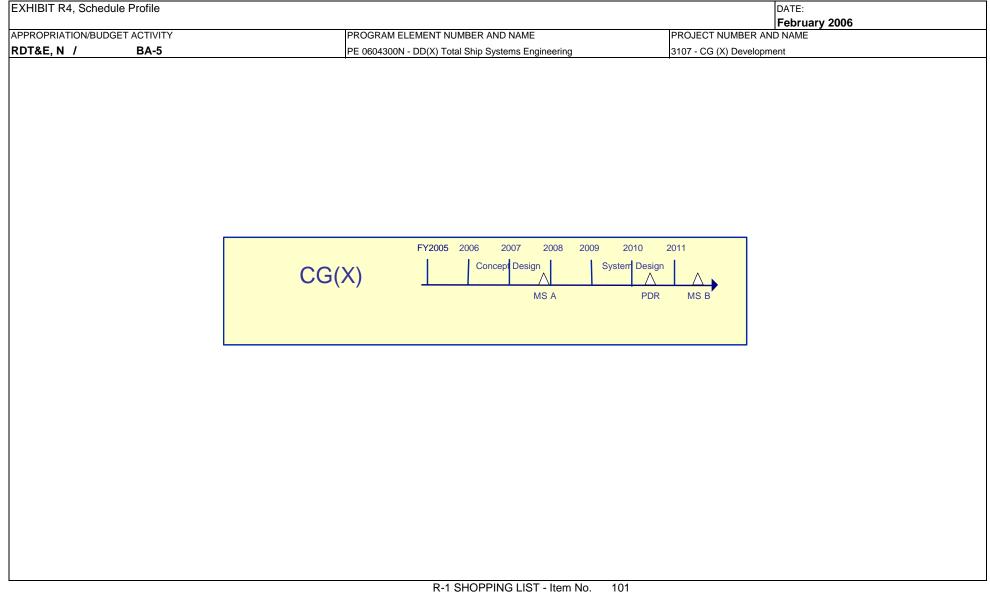
#### CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (pa		February 2	2006									
APPROPRIATION/BUDGET ACTIVITY  RDT&E, N / BA-5  Cost Categories   Contract   Performing   Tota				PROGRAM E	LEMENT			PROJECT N	JMBER AND	O NAME		
				PE 0604300N	I - DD(X) To	tal Ship Systems	Engineering	3107 - CG (X	) Developme	ent		
Cost Categories		Performing	Total		FY 05		FY 06		FY 07			
	Method	Activity &	PY s		Award		Award	FY 07	Award	Cost to	Total	Target Value
	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Primary Hardware Development											CONT	
Olin late and the											0.000	
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			0.000	0.000	)	0.000		0.000	)	0.000	0.000	)
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:												
· -		<u> </u>	R-1 SHOP	PING LIST	- Item No	101				<u> </u>		

#### CLASSIFICATION:

								DATE:						
Exhibit R-3 Cost Analysis (pag	ne 2)							February 2	006					
APPROPRIATION/BUDGET ACTIV	ITY		PROGRAM EI	EMENT			PROJECT N	UMBER AND NAME						
RDT&E, N / BA-5			PE 0604300N	- DD(X) Total			3107 - CG (X) Development							
Cost Categories	Contract Method & Type	Performing Activity & Location		FY 05 Cost	FY 05 Award Date	FY 06	FY 06 Award Date	FY 07	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract		
Developmental Test Evaluation	71 -										0.000			
·											0.000			
											0.000	,		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	,		
Remarks:														
Contractor Engineering Support		TBD				7.415	2QFY06	2.321	1QFY07	CONT	CONT			
										CONT	CONT			
Government Engineering Support		TBD				22.244	2QFY06	6.962	1QFY07	CONT	CONT			
										CONT	CONT			
										CONT	CONT			
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			0.000	0.000		29.658		9.282		CONT	CONT			
Remarks:														
Total Cost			0.000	0.000		29.658		9.282		CONT	CONT			
Remarks:														

#### CLASSIFICATION:



### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:					
Exhibit N-4a, Ochodule Detail						ebruary 200	16				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT	MBED VND VI	AME	, o						
			Olain Octobria 5	PROJECT NUMBER AND NAME							
RDT&E, N / BA-5							3107 - CG (X) Development				
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011				
Milestone A			4Q								
Preliminary Design Review			4Q			1Q-3Q					
Milestone B						1Q-3Q	4Q				
Milliodicitio B											

R-1 SHOPPING LIST - Item No.

101

**UNCLASSIFIED** 

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification						DATE:		
						February 2006		
APPROPRIATION/BUDGET ACTIVITY	R AND NAME							
RDT&E, N / BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering 4009 - Advanced Go							
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	61.528	46.110	47.021	47.814	48.640	49.410	50.283	
RDT&E Articles Qty								

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

These funds provide for the development of the Advanced Gun System (AGS) and the development and qualification of the Long Range Attack Projectile (LRLAP) associated with the development of DD(X). The AGS will consist of a major caliber gun, an automated ammunition handling system, and a family of munitions/propelling charges. The AGS will, at a minimum, meet the Land Attack and Surface Dominance Missions assigned to the gun system. The system will provide a high rate of fire (approximately 10 rounds per minute) with a magazine capacity sufficient in size for meeting USMC operational requirements. LRLAP will be stored throughout its life cycle in an 8 round pallet which is handled by the AGS magazine. By palletizing the munition, AGS is able to significantly reduce manning and improve munition reliability, safety and resupply. The LRLAP EDM guided flight tests began in Dec 2004 and will be followed by final System Design and Development and qualification testing through 2010. The Long Range Land Attack Projectile (LRLAP) fired from AGS has a range of approximately 83 nautical miles and will deliver a high explosive unitary payload with GPS accuracy.

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification	on			DATE:
PPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	ARER AND NAME	PROJECT NUMBER AND	February 2006
DT&E, N /				
DIGE, N /	PE 0604300N - DD(X) Total	Snip Systems Engineering	4009 - Advanced Gun Syst	tem (AGS)
. Accomplishments/Planned Program				
		T =24.22	T = 1/2=	
Accomplishments/Effort/Subtotal Cost	FY 05	FY 06	FY 07	4
	20.365	0.000	0.000	4
RDT&E Articles Quantity				
Continued LRLAP EDM development and testing	J.			
		1	T	<b>¬</b>
	FY 05	FY 06	FY 07	_
Accomplishments/Effort/Subtotal Cost	12.334	0.000	0.000	_
RDT&E Articles Quantity				
Commenced Land Based testing of AGS EDM.				
Commenced Land Based testing of AGS EDIVI.				
	FY 05	FY 06	FY 07	7
Accomplishments/Effort/Subtotal Cost	23.639	0.000	0.000	┪
RDT&E Articles Quantity				7
·	•	•	•	
Commenced integration of Gun, Magazine, ISC	EDMs.			
I				
				I

R-1 SHOPPING LIST - Item No.

101

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justificat	iion			DATE: February 2006
PPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME	PROJECT NUMBER AN	
DT&E, N / BA-5	PE 0604300N - DD(X) Total Ship	Systems Engineering	4009 - Advanced Gun Sy	vstem (AGS)
. Accomplishments/Planned Program	·			
	FY 05	FY 06	FY 07	$\neg$
Accomplishments/Effort/Subtotal Cost	0.000	1.037	2.388	
RDT&E Articles Quantity	0.000		2.000	
AGS Qualification				
	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	5.190	40.410	35.764	
RDT&E Articles Quantity	5.100		555.	
LRLAP System Design and Development.	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity	0.000	4.663	8.869	
LRLAP Qualification and Development testing.				
	D. 4. OLIODD	ING LIST - Item No.	101	

#### **CLASSIFICATION:**

KHIBIT R-2a, RDT&E Project Justification	DATE: February 2006
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME PROJECT NUMBER AND NAME
DT&E, N / BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering 4009 - Advanced Gun System (AGS)
C. PROGRAM CHANGE SUMMARY:	
Funding:	FY 2005 FY 2006 FY 2007
FY 2006 President's Budget:	45.951 46.812 47.003
FY 2007 President's Budget:	61.528 46.110 47.021
Total Adjustments	15.577 -0.702 0.018
Summary of Adjustments	
Rescission	-0.489
Inflation	0.209
Other General Provisions	-1.123 -0.213 -0.171
Warfare Center Rates	-0.020
Programmatic Changes	
Subtotal	15.577 -0.702 0.018
Schedule: Not Applicable	
Technical: Not Applicable	
	D. 4. CHODDING LIST. Hom No. 404

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME PROJEC	NUMBER AND NAME
RDT&E, N / BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering 4009 - Ad	vanced Gun System (AGS)

#### D. OTHER PROGRAM FUNDING SUMMARY:

								10	iotai
Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Cost
PE 0603513N / Shipboard Sys Component Dev	44.282	50.918	14.135	16.686	16.828	16.983	17.161	CONT	CONT
BLI 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:

DD(X) Phase IV includes the continuation of warfare system development, integration and testing from Phase III, as well as ship detail design and construction. The Navy intends to award contracts to BIW and NGSS for detail design and construction of a lead ship at each yard. It is planned that the Phase IV detail design will be contracted for on a Cost Plus Award Fee (CPAF) basis, and that ship construction efforts for the lead ships will be on a Cost Plus Incentive Fee (CPIF) basis with additional performance incentives. The Acquisition Strategy Report (ASR) reflecting the dual lead ship strategy was approved at the DD(X) Milestone B decision in November 2005.

#### F. MAJOR PERFORMERS:

Major Contractors- BAE Systems, Lockheed Martin and Northrop Grumman Ship Systems
Field Activities - NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme, NSWC Port Hueneme Louisville detachment, NSWC Indian Head
Universities - N/A

R-1 SHOPPING LIST - Item No. 101

Total

#### CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (pa	ge 1)							February 2	006			
APPROPRIATION/BUDGET ACTI	VITY			PROGRAM EI	LEMENT			PROJECT NU	IMBER AND N	AME		
RDT&E, N / BA-5				PE 0604300N	- DD(X) Total	Ship Systems I	Engineering	4009 - Advanc	ed Gun Syste	m (AGS)		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05	FY 05 Award Date (1)	FY 06	FY 06 Award Date (2)	FY 07 Cost	FY 07 Award Date (2)	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPAF	DD(X) Design Agent	201.235	41.449	1QFY05	0.000	N/A	0.000	N/A	0.00	242.684	242.684
	845/804	DD(X) Industry Teams	177.435	0.000	N/A	0.000	N/A	0.000	N/A	0.00	177.435	177.435
	CPAF	BAE/Lockheed Martin	0.000	0.000	N/A	43.498	1QFY 06	24.400	1QFY 07	CON	CONT	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	)
Training Development												
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			378.670	41.449		43.498		24.400		CON	CONT	420.119

Remarks: The DD(X) Phase IV contract is funded in the 1st Qtr. of each fiscal year.

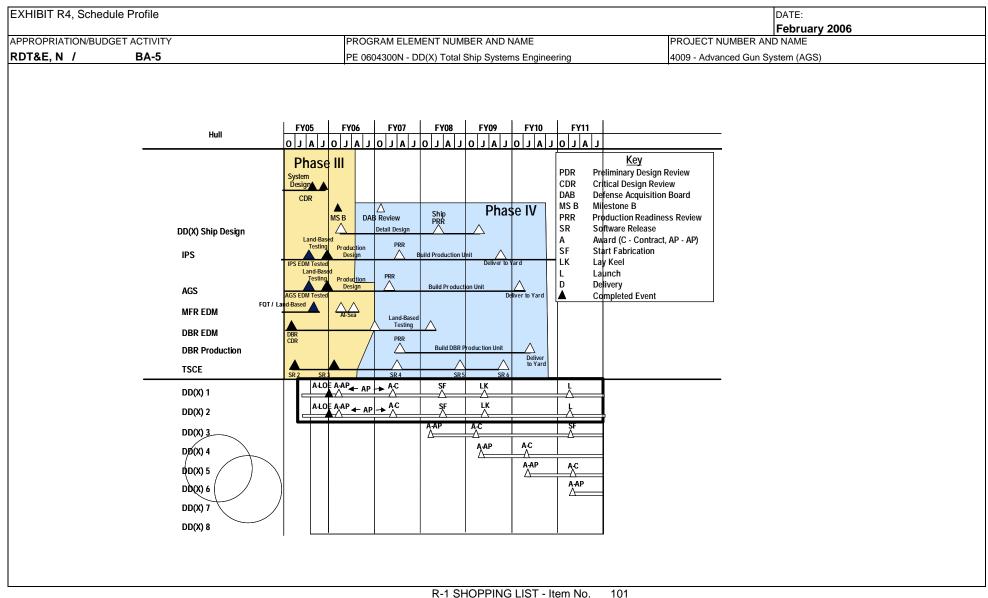
Development Support							0.000	
Software Development							0.000	
Training Development							0.000	
Integrated Logistics Support							0.000	
Configuration Management							0.000	
Technical Data							0.000	
GFE							0.000	
Award Fees							0.000	
Subtotal Support		0.000	0.000	0.000	0.000	0.000	0.000	

Remarks:

#### CLASSIFICATION:

Exhibit R-3 Cost Analysis (page APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5  Cost Categories C								DATE:					
RDT&E, N / BA-5 Cost Categories	Υ							February 2					
Cost Categories C	•			PROGRAM EL	EMENT			PROJECT NU	MBER AND I	NAME			
					( )	Ship Systems	0 0	4009 - Advanced Gun System (AGS)					
& Type Location		Performing Activity &	Total PY s	FY 05	FY 05 Award	FY 06	FY 06 Award	FY 07	FY 07 Award	Cost to	Total	Target Valu	
			Cost	1	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract	
Developmental Test Evaluation C	CPAF	BAE/Lockheed Martin	0.000	0.000	N/A	0.800	1QFY06	20.600	1QFY07	0.000		1	
<u> </u>											0.000	1	
<u>_</u>											0.000	1	
Subtotal T&E			0.000	0.000		0.800	)	20.600		0.000	21.400	21.400	
Contractor Engineering Support G	GSA/CPFF	Anteon Arlington VA	6.44	0.578	10/04	0.341	10/05	0.467	10/06	CONT	CONT		
V	/arious	Other Contractors	0.000	15.577	Various	0.000	N/A	0.000	N/A	CONT	CONT		
Government Engineering Support W	NX	NSWC DD Dahlgren VA	15.062	2.496	10/04	0.682	10/05	0.664	10/06	CONT	CONT		
w	ΝX	NSWC PHD Pt Hueneme CA	7.842	2 1.103	10/04	0.639	10/05	0.722	10/06	CONT	CONT		
W	NX	Other Gov't Activities	11.21	0.325	Various	0.150	10/05	0.168	10/06	CONT	CONT		
Program Management Support													
ravel													
abor (Research Personnel)													
SBIR Assessment													
Subtotal Management			40.56	3 20.079		1.812	!	2.021		CONT	CONT	1	

#### **CLASSIFICATION:**



### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:		
						F	ebruary 200	)6
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT			PROJECT NU			
RDT&E, N / BA-5	PE 0604300N	- DD(X) Total S	Ship Systems E	ngineering	4009 - Advanc	ed Gun Syster	m (AGS)	
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
AGS EDM	3Q-4Q	1Q						
Land-Based Testing	3Q-4Q	1Q						
Production Design Production Readiness Review		1Q-4Q	1Q					
Production Readiness Review			2Q					
Build Production Unit			2Q-4Q	1Q-4Q	1Q-4Q	1Q		
Deliver to Yard						2Q		

R-1 SHOPPING LIST - Item No.

101

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification	า					DATE:				
						February 2006				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ENT NUMBER ANI	O NAME		PROJECT NUMBE	R AND NAME				
RDT&E, N / BA-5	DT&E, N / BA-5 0604300N/ DD(X) Total Ship Sys Engineering 4010/Integrated Po									
COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011			
Project Cost	62.679	0.000	0.000	0.000	0.000	0.000				
RDT&E Articles Qty	0	0	0	0						

- **A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:** This project provides funds to develop and test integrated power system Engineering Development Modules (EDMs) for DD(X) including Permanent Magnet (PM) motor and motor drive technologies. On 6 January 2000, SECNAV announced Navy intent for DD(X) to be an electric drive ship with integrated power architecture. IPS reduces acquisition and operating costs of naval ships and increases military effectiveness. IPS provides total ship electric power, including electric propulsion, power conversion and distribution, and mission load interfaces to the electric power system. 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 by: reducing ship acquisition cost through integration of propulsion and ship's service prime movers; reducing ship operational costs by creating more flexible operating characteristics and more efficient components; reducing ship construction costs by allowing more extensive modular construction of power generation, distribution, and loads; improving ship survivability and reducing vulnerability through increased arrangement flexibility and improved electrical system survivability; reducing manning by improving power management systems and reducing on-board maintenance requirements; improving ship signature characteristics; improving 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; simplifying technology insertion which allows new technologies to be installed within IPS much less expensively than presently possible; and reducing machinery system acquisition costs by utilizating commercially shared technologies and components.

FY05 Supplemental funding: \$5M provided for Permanent Magnet Motor

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Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2)

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	IAME
RDT&E, N /BA-5	0604300N/ DD(X) Total Ship Sys Engineering	4010/Integrated Power Syste	ems on DD(X)
			_

### B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	57.679	0.000	0.000
RDT&E Articles Quantity	0	0	0

Platform Specific Development: Fabricated DD(X) IPS Engineering Development Model (EDM) for land based testing. Performed factory acceptance tests of major components. In support of DD(X) IPS EDM land based testing, completed test site preparations and prepared test plans. Delivered DD(X) IPS EDMs to land based test site. Installed, checked, integrated and conducted testing.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	5.000	0.000	0.000
RDT&E Articles Quantity	0	0	0

Permanent Magnet Motor (PMM): Continued development of the Permanent Magnet Motor (PMM), specifically the insulation system. FY05 Supplemental Funding.

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**UNCLASSIFIED** 

Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2)

#### **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-5	0604300N/ DD(X) Total Ship Sys E	Engineering		4010/Integrated Power Systems on DD(X)	
C. PROGRAM CHANGE SUMMARY:					
Funding: FY 2006 President's Budget: FY 2007 President's Budget:	FY 2005 59.495 62.679	FY 2006	FY 2007		
Total Adjustments	3.184	0.000	0.000		
Summary of Adjustments Other General Provisions Programmatic Changes Subtotal	-1.816 5.000 3.184	0.000	0.000		
Schedule: Not Applicable					
Technical: Not Applicalbe					

#### 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-5	0604300N/ DD(X) Total Ship Sys Engineering	4010/Integrated Power Systems on DD(X)

#### D. OTHER PROGRAM FUNDING SUMMARY:

								10	iotai
Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Cost
PE 0603513N / Shipboard Sys Component Dev	44.282	50.918	14.135	16.686	16.828	16.983	17.161	CONT	CONT
BLI 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:

DD(X) Phase IV includes the continuation of warfare system development, integration and testing from Phase III, as well as ship detail design and construction. The Navy intends to award contracts to BIW and NGSS for detail design and construction of a lead ship at each yard. It is planned that the Phase IV detail design will be contracted for on a Cost Plus Award Fee (CPAF) basis, and that ship construction efforts for the lead ships will be on a Cost Plus Incentive Fee (CPIF) basis with additional performance incentives. The Acquisition Strategy Report (ASR) reflecting the dual lead ship strategy was approved at the DD(X) Milestone B decision in November 2005.

#### F. MAJOR PERFORMERS:

IPS DD(X) Design Agent, Northrop Grumman Ship Systems

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Total

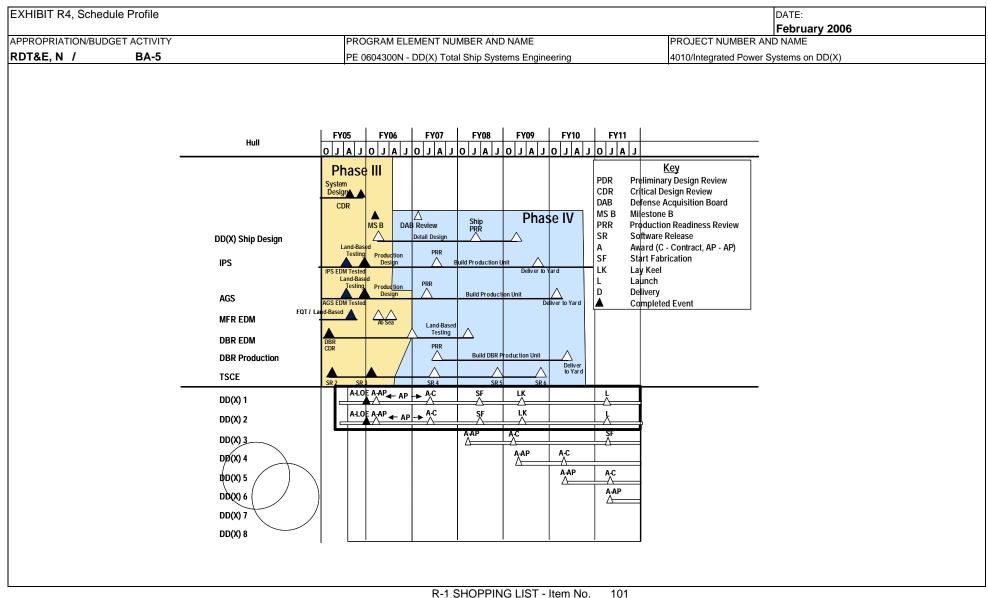
### CLASSIFICATION:

								DATE:					
Exhibit R-3 Cost Analysis (pag	je 1)							February 2006					
APPROPRIATION/BUDGET ACTIV	ITY			PROGRAM EI	LEMENT			PROJECT NUMBER AND NAME					
RDT&E, N / BA-5	_					Sys Engineeri		4010/Integrated Power Systems on DD(X)					
Cost Categories	Contract	Performing	Total		FY 05		FY 06		FY 07				
	Method & Type	Activity & Location	PY s Cost	FY 05 Cost	Award Date (1)	FY 06 Cost	Award Date (1)	FY 07 Cost	Award Date (1)			Target Value of Contract	
Drimon, Hardware Davelanment	CPAF	DD(X) Design Agent	223.614		` '	Cost	Date (1)	Cost	Date (1)	•			
Primary Hardware Development				02.079	TQFT05					0.000	286.293		
	845/804	DD(X) Industry Teams	66.661							0.000	66.661	66.661	
										+			
										+			
Ancillary Hardware Development													
Systems Engineering													
Licenses													
Tooling													
GFE													
Award Fees													
Subtotal Product Development			290.275	62.679		0.000		0.000		0.000	352.954	352.954	
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		
Remarks:													

#### CLASSIFICATION:

								DATE:						
Exhibit R-3 Cost Analysis (page	ge 2)							February	2006					
APPROPRIATION/BUDGET ACTIV	/ITY			PROGRAM EI					NUMBER ANI					
RDT&E, N / BA-5				0604300N/ DE		p Sys Engineerii		4010/Integr	4010/Integrated Power Systems on DD(X)					
Cost Categories	Contract	Performing	Total PY s	EV 05	FY 05	FY 06	FY 06	FY 07 FY 07 Award		0 1 1 -	Cost to Total			
	Method & Type	Activity & Location	Cost	FY 05 Cost	Award Date	Cost	Award Date	Cost	Date	Cost to Complete	Cost	Target Value of Contract		
Developmental Test & Evaluation	а туре	Location	Cost	Cost	Date	0031	Date	Cost	Date	Complete	0031	Or Contract		
Operational Test & Evaluation												1		
Test Assets												1		
Tooling														
GFE												1		
Award Fees														
Subtotal T&E			0.00	0.000	)	0.00	0	0.0	000	0.000	0.000	5		
	ı			1		ı	1	1						
Contractor Engineering Support											0.000	J		
Government Engineering Support											0.000			
Program Management Support											0.000			
Travel											0.000			
Labor (Research Personnel)											0.000			
SBIR Assessment											0.000			
Subtotal Management			0.00	0.000	)	0.000	0	0.0	000	0.000	0.000	)		
Remarks:														
Total Cost			290.27	5 62.679		0.00	0	0.0	000	0.000	352.954	4 352.954		
Remarks:														

#### **CLASSIFICATION:**



(Exhibit R-2)

### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail					DATE:			
				-		Februa	ary 2006	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT		PROJECT NU	MBER AND NA	AME		
RDT&E, N /BA-5	0604300N/ DI	O(X) Total Ship	Sys Engineering	4010/Integrate	d Power Syste	ms on DD(X)		
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Concadio i Tomo	1 1 2000	1 1 2000	1 1 2007	1 1 2000	1 1 2000	1 1 2010	1 1 2011	
Land Based Testing of IPS DD(X) EDMs	3Q-4Q	1Q						
Land Based Testing of IPS DD(X) EDMs Production Readiness Review			3Q					
Production Design	4Q	1Q-4Q	1Q-2Q					
Build Production Unit			2Q-4Q	1Q-4Q	1Q-3Q			
Deliver to Yard					4Q			
							1	
							1	
							1	
							1	Ī

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justific	ation			DATE: February 2006		
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBI	ER AND NAME	PROJECT NUMBE			
T&E, N / BA-5	PE 0604300N - DD(X) Total St	PE 0604300N - DD(X) Total Ship Systems Engineering		9999 Congressional Plus-Ups : VARIOUS		
CONGRESSIONAL PLUS-UPS:						
	FY 06					
9554C						
Naval Smartship	1.000					
Funding for FY06 Naval Smartship Congress	ional Add.					
	FY 06					
9832N						
CG(X) System Concept and Design	30.000					
Funding for FY06 CG(X) system Concept and	d Design Congressional Add.					
	FY 06					
9833N Floring Arga Notwork						
9833N Floating Area Network Funding for FY06 Floating area network Cor	2.000					

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### **CLASSIFICATION:**

	tion			DATE: February 2006	
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUM	MBER AND NAME	PROJECT NUMBER		
T&E, N / BA-5	PE 0604300N - DD(X) Total Ship Systems Engineering		9999 Congressiona	l Plus-Ups : VARIOUS	
CONGRESSIONAL PLUS-UPS:	,				
	FY 06				
9834N					
Permanent Magnet Motor	6.600				
	-		T		
9835N	FY 06				
Surface Vessel Electric Actuator Tech Dev	1.000				
Funding for EV06 Surface Vessel Flectric Actu	stor Technology Development Cond	Arassional Add			
Funding for FY06 Surface Vessel Electric Actu	lator Technology Development Cong	gressional Add.			
Funding for FY06 Surface Vessel Electric Actu		gressional Add.			

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