

EXHIBIT R-2, RDT&E Budget Item Justification						DATE:		
APPROPRIATION/BUDGET ACTIVITY						February 2005		
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5						R-1 ITEM NOMENCLATURE		
						PE 0604300N - DD (X) Total Ship Systems Engineering		
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420
2464 / DD(X) System Design, Development and Int	793.750	978.846	1,027.787	741.974	396.785	233.299	229.582	272.998
2466 / Multi-Function Radar	23.301	12.164	0.000	0.000	0.000	0.000	0.000	0.000
2735 / Volume Search Radar	68.474	57.118	10.082	5.071	0.000	0.000	0.000	0.000
3105 / BLK II Seeker Technology Dev.	0.000	0.000	0.000	0.000	51.551	86.054	95.912	81.581
3106 / Combat Systems Integration	0.000	0.000	0.000	50.349	65.203	75.088	74.967	79.635
3107 / CG (X) Development	0.000	0.000	30.110	60.035	162.700	204.231	225.895	241.868
4009 / Advanced Gun System (AGS)	47.459	45.951	46.812	47.003	47.788	48.647	49.552	50.338
4010 / Integrated Power System (IPS)	69.114	59.495	0.000	0.000	0.000	0.000	0.000	0.000
9376 / Alternative Engine	6.770	9.374	0.000	0.000	0.000	0.000	0.000	0.000
9377 / Knowledge Projection for Fleet Maintenance	1.929	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9378 / Modular Radio	3.265	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9379 / Wireless LAN	0.963	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9554 / Naval Smartship	0.000	0.985	0.000	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, advanced development R&D which is integral to DD(X) Destroyer 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. The following Congressional adds are contained in this Program Element: -Alternative Engine. Provides a system alternative for the lead ship power solution and will further enhance the GE engine design. -Knowledge Projection. Funds the development of a new system to remotely monitor Navy ships (systems and equipment), enable technicians to repair and maintain increasing complex equipment utilizing equipment failure characteristics, and share related repair knowledge with off-ship technical experts via the DoD/Navy communications systems. -Wireless LAN Design Tools. Funds development of a computer-based wireless LAN to reduce the costs of designing wireless LAN systems to aid in developing cost-effective WLAN solutions for Navy ships. -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.								

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 2464 - DD(X) System Design, Development & Integration			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	793.750	978.846	1,027.787	741.974	396.785	233.299	229.582	272.998
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project encompasses efforts for the Phase IV systems engineering, completion and testing of selected Engineering Development Models (EDMs), verification and validations of selected models. This PE also funds the DD(X) Flight I software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V). This effort includes the end-to-end software development costs for software releases 4-6 for the Flight I Ship.

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2464 - DD(X) System Design, Development & Integration																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">719.858</td> <td style="text-align: center;">895.475</td> <td style="text-align: center;">81.400</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	719.858	895.475	81.400	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	719.858	895.475	81.400	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>In FY04, conducted the Preliminary Design Review (PDR) and began planning for the Critical Design Review (CDR). In FY05 conduct the CDR and Milestone B. Begin preparing for the Detail Design and Construction phase. In FY06, continue S-Band Radar integration and test.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">41.657</td> <td style="text-align: center;">55.510</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	41.657	55.510	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	41.657	55.510	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>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 will review and certify the DD(X) Design Agent software development. This task concludes with contract Phase III in FY05.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">18.525</td> <td style="text-align: center;">17.425</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	18.525	17.425	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	18.525	17.425	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>The DD(X) LFT&E Program focuses on the following areas: Mission Recoverability, Magazine Protection, Damaged Seaway Survival, Selected Equipment Vulnerability, and Advanced Weapons Threat Effects. These areas address 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 FY04, began testing of EDMs that will be incorporated into the DD(X) Ship Design. In FY05, Complete the Vulnerability Assessment Report (VAR) for the DD(X) Phase III prior to the DD(X) CDR.</p> </div>																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2464 - DD(X) System Design, Development & Integration		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	13.710	10.436	0.000	0.000
RDT&E Articles Quantity				
<p>Continue identification and risk mitigation efforts in high risk areas such as Manning, Life Cycle Engineering and Support (LCE&S), and Total Ship Computing. Continue 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. Monitor the industry-developed risk watch list and evaluate as a mechanism for reporting risk metrics in DD(X) Aquisition reporting documentation. Review and develop proposed policy changes as a result of how DD(X) will impact Navy manning and life cycle support structure. Establish Executive Steering Groups to review/ monitor specific Phase III technology development focus areas: Integrated Power System (IPS) and propulsion, Radar Suite and Software.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	721.733	605.296
RDT&E Articles Quantity				
<p>Development of the DD(X) Flight I software requirements analysis, architectural and detail design, 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 test planning, conduct, test data analysis and reporting as listed in the DD(X) TEMP. Perform total ship system design and analysis engineering studies. 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 System for DD(X).</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	224.654	136.678
RDT&E Articles Quantity				
<p>Completion and testing of ship and warfare system engineering development models. Conduct Ship Control System (SCS) testing at the land based test facility to include: system integration prior to shipboard installation, Human Systems Integration on utilizing automation, validate proposed software changes prior to shipboard installation and perform all tests required by the Test & Evaluation Master Plan (TEMP). Conduct developmental testing on aft Peripheral Vertical Launching System (PVLS) and selected Integrated Power System (IPS) components. Tesing to demonstrate casualty response drills on IPS Land Based Test Facility components including fire-fighting operations using the techniques identified for the Flight I design (e.g., water mist fire fighting media). Conduct communication and sense aperture cosite and electromagnetic interference risk reduction testing for critical arrays (those most likely to have electromagnetic interference issues) at the Wallops Island Test Facility. Conduct integrated firefighting demonstrations aboard the ex-SHADWELL using a representative fire main architecture that reflects two partial fire zones on the DD(X). Conduct Tomahawk restrained firing test.</p>				

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																																												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2464 - DD(X) System Design, Development & Integration																																																																													
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY 2005 President's Budget</td> <td style="text-align: right;">821.377</td> <td style="text-align: right;">1,034.002</td> <td style="text-align: right;">1,017.159</td> <td style="text-align: right;">721.649</td> </tr> <tr> <td>FY 2006/2007 President's Budget</td> <td style="text-align: right;">793.750</td> <td style="text-align: right;">978.846</td> <td style="text-align: right;">1,027.787</td> <td style="text-align: right;">741.974</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-27.627</td> <td style="text-align: right; border-top: 1px solid black;">-55.156</td> <td style="text-align: right; border-top: 1px solid black;">10.628</td> <td style="text-align: right; border-top: 1px solid black;">20.325</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>SBIR</td> <td style="text-align: right;">-20.637</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ATFP</td> <td></td> <td></td> <td style="text-align: right;">1.500</td> <td style="text-align: right;">2.000</td> </tr> <tr> <td>ERAM Insensitive Munitions/DBR Upgrades</td> <td></td> <td></td> <td style="text-align: right;">7.000</td> <td style="text-align: right;">9.000</td> </tr> <tr> <td>Cancelled Accounts</td> <td style="text-align: right;">-1.077</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Execution Realignment</td> <td style="text-align: right;">-5.091</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Congressional Reductions</td> <td></td> <td style="text-align: right;">-44.500</td> <td></td> <td></td> </tr> <tr> <td>Congressional Undistributed Reductions</td> <td></td> <td style="text-align: right;">-9.465</td> <td></td> <td></td> </tr> <tr> <td>Inflation Adjustments</td> <td style="text-align: right;">-0.776</td> <td></td> <td style="text-align: right;">8.978</td> <td style="text-align: right;">8.040</td> </tr> <tr> <td>Miscellaneous Adjustments</td> <td style="text-align: right;">-0.046</td> <td style="text-align: right;">-1.191</td> <td style="text-align: right;">-6.850</td> <td style="text-align: right;">1.285</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right;">-27.627</td> <td style="text-align: right;">-55.156</td> <td style="text-align: right;">10.628</td> <td style="text-align: right;">20.325</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule: Not Applicable</p> <p style="margin-top: 20px;">Technical: Not Applicable</p>					Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY 2005 President's Budget	821.377	1,034.002	1,017.159	721.649	FY 2006/2007 President's Budget	793.750	978.846	1,027.787	741.974	Total Adjustments	-27.627	-55.156	10.628	20.325	Summary of Adjustments					SBIR	-20.637				ATFP			1.500	2.000	ERAM Insensitive Munitions/DBR Upgrades			7.000	9.000	Cancelled Accounts	-1.077				Execution Realignment	-5.091				Congressional Reductions		-44.500			Congressional Undistributed Reductions		-9.465			Inflation Adjustments	-0.776		8.978	8.040	Miscellaneous Adjustments	-0.046	-1.191	-6.850	1.285	Subtotal	-27.627	-55.156	10.628	20.325
Funding:	FY 2004	FY 2005	FY 2006	FY 2007																																																																											
FY 2005 President's Budget	821.377	1,034.002	1,017.159	721.649																																																																											
FY 2006/2007 President's Budget	793.750	978.846	1,027.787	741.974																																																																											
Total Adjustments	-27.627	-55.156	10.628	20.325																																																																											
Summary of Adjustments																																																																															
SBIR	-20.637																																																																														
ATFP			1.500	2.000																																																																											
ERAM Insensitive Munitions/DBR Upgrades			7.000	9.000																																																																											
Cancelled Accounts	-1.077																																																																														
Execution Realignment	-5.091																																																																														
Congressional Reductions		-44.500																																																																													
Congressional Undistributed Reductions		-9.465																																																																													
Inflation Adjustments	-0.776		8.978	8.040																																																																											
Miscellaneous Adjustments	-0.046	-1.191	-6.850	1.285																																																																											
Subtotal	-27.627	-55.156	10.628	20.325																																																																											

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering			PROJECT NUMBER AND NAME 2464 - DD(X) System Design, Development & Integration																																					
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: right;"><u>FY 2004</u></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> <th style="text-align: right;"><u>FY 2008</u></th> <th style="text-align: right;"><u>FY 2009</u></th> <th style="text-align: right;"><u>FY 2010</u></th> <th style="text-align: right;"><u>FY 2011</u></th> <th style="text-align: right;"><u>To Complete</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>PE 0603513N / Shipboard Sys Component Dev</td> <td style="text-align: right;">35.425</td> <td style="text-align: right;">45.254</td> <td style="text-align: right;">22.150</td> <td style="text-align: right;">16.420</td> <td style="text-align: right;">19.271</td> <td style="text-align: right;">19.535</td> <td style="text-align: right;">19.780</td> <td style="text-align: right;">19.942</td> <td style="text-align: right;">CONT</td> <td style="text-align: right;">CONT</td> </tr> <tr> <td>BLI 2211900 / SCN</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">304.281</td> <td style="text-align: right;">715.992</td> <td style="text-align: right;">2,567.960</td> <td style="text-align: right;">2,814.869</td> <td style="text-align: right;">2,542.584</td> <td style="text-align: right;">2,629.878</td> <td style="text-align: right;">2,186.346</td> <td style="text-align: right;">CONT</td> <td style="text-align: right;">CONT</td> </tr> </tbody> </table> <p style="margin-top: 20px;">E. ACQUISITION STRATEGY:</p> <p>(U) The DD (X) acquisition strategy encompasses five contract phases: Phase I – System Concepts, Phase II – Initial System Design, Phase III – System Design, Phase IV – Detail Design and Construction, and Phase V – Engineering and Logistics Life Cycle Support. The Navy awarded section 845/804 agreements for Phases I and II for two DD (X) Industry teams. Downselection to a single DD (X) Design Agent, Northrop Grumman ship systems, occurred 3rd quarter FY 2002 to begin Contract Phase III. The Phase IV RDT&E efforts begin in FY06. The DD(X) acquisition strategy for the first six ships was approved by OUSD (AT&L) on 24 Feb 04. The Navy will contract the DD(X) Design Agent (DA), Northrop Grumman Ship Systems (NGSS), as a single source for Phase IV detail design and integration efforts using a CPAF/CPIF contract type.</p> <p style="margin-top: 20px;">F. MAJOR PERFORMERS:</p> <p>DD(X) Design Agent - Northrop Grumman Ship Systems Major Subcontractors - Raytheon, Bath Iron Works, UDLP, Lockheed Martin, NGMS Government Field Activities - NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme Universities - John Hopkins University, Applied Physics Lab (APL/JHU)</p>											<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>	PE 0603513N / Shipboard Sys Component Dev	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942	CONT	CONT	BLI 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT	CONT
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>																																	
PE 0603513N / Shipboard Sys Component Dev	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942	CONT	CONT																																	
BLI 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT	CONT																																	

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-5			PE 0604300N - DD(X) Total Ship Systems Engineering			2464 - DD(X) System Design, Development & Integration									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date (1)	FY 05 Cost	FY 05 Award Date (1)	FY 06 Cost	FY 06 Award Date (1)	FY 07 Cost	FY 07 Award Date (1)	Cost to Complete	Total Cost	Target Value of Contract	
Initial System Concepts - Phase I	OTA	DD(X) Industry Team	54.800	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	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	N/A	0.000	139.919		
Primary H/W Development- Phase III	CPAF	DD(X) Design Agent (NGSS)	585.213	719.858	1QFY04	869.369	1QFY05	62.200	1QFY06	0.000	N/A	CONT.	CONT.		
Ship Integration Development Phase IV		DD(X) Design Agent (NGSS)						787.697	1QFY06	558.972	1QFY07	CONT.	CONT.		
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			779.932	719.858		869.369		849.897		558.972		CONT.	CONT.		
Remarks: (1) The DD(X) Design Agent contract was awarded in April 2002.															
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	0.000		
Remarks: Support costs are included in the Development contract costs.															

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RDTEN Cost Analysis
(Exhibit R-3, page 7 of 61)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-5			PE 0604300N - DD(X) Total Ship Systems Engineering			2464 - DD(X) System Design, Development & Integration									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
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	N/A	N/A	4.875		
Live Fire Test & Evaluation	CAPF	DD(X) Design Agent	4.100	0.000	12/02	41.700	N/A	20.900	1QFY06	60.300	1QFY07	Continuing	Continuing		
Live Fire Test & Evaluation	WR	NSWC CD Bethesda MD	14.812	7.921	11/03	0.000	N/A	0.000	N/A	0.000	N/A	N/A	22.733		
Live Fire Test & Evaluation	WR	NSWC DD Dahlgren VA	1.950	1.450	11/03	0.000	N/A	0.000	N/A	0.000	N/A	N/A	3.400		
Live Fire Test & Evaluation	Various	Various	7.022	9.154	11/03	4.200	11/04	8.600	1QFY06	10.100	1QFY07	Continuing	Continuing		
GFE															
Award Fees															
Subtotal T&E			32.759	18.525		45.900		29.500		70.400		Continuing	Continuing		
Remarks:															
Contractor Engineering Support	GSA/FFP	Anteon Arlington VA	15.617	9.780	11/03	12.348	11/04	0.000	N/A	0.000	N/A	Continuing	Continuing		
	GSA	GRCI, Falls Church VA	6.342	2.019	11/03	0.945	11/04	0.000	N/A	0.000	N/A	Continuing	Continuing		
		Seaport, NAVSEA						18.500	1QFY06	19.400	1QFY07	Continuing	Continuing		
	Misc	Various	8.665	1.334	11/03	2.890	11/04	7.500	1QFY06	4.900	1QFY07	Continuing	Continuing		
Government Engineering Support	WR	NSWC DD Dahlgren VA	51.137	14.237	11/03	12.076	11/04	28.600	1QFY06	23.200	1QFY07	Continuing	Continuing		
	WR	NSWC CD Bethesda MD	26.706	10.142	11/03	13.540	11/04	23.700	1QFY06	20.370	1QFY07	Continuing	Continuing		
	WR	NSWC CR Crane IN	4.712	0.613	11/03	0.576	11/04	3.750	1QFY06	3.000	1QFY07	Continuing	Continuing		
	WR	NSWC PHD Pt Hueneme CA	6.705	2.391	11/03	1.349	11/04	18.650	1QFY06	13.694	1QFY07	Continuing	Continuing		
	WR	SSCSD Dan Diego CA	6.861	1.396	11/03	1.468	11/04	6.500	1QFY06	3.000	1QFY07	Continuing	Continuing		
	WR	NUWC/N Newport RI	4.105	1.420	11/03	1.025	11/04	6.500	1QFY06	3.000	1QFY07	Continuing	Continuing		
	WR	NSWC/PC Panama City, FL	1.380	0.752	11/03	1.500	11/04	7.500	1QFY06	3.500	1QFY07	Continuing	Continuing		
	Various	Other Govt Activities	13.141	0.701	11/03	5.091	11/04	13.000	1QFY06	10.900	1QFY07	Continuing	Continuing		
Program Management Support	Various	Various	12.540	2.948	11/03	3.154	11/04	4.500	1QFY06	2.500	1QFY07	Continuing	Continuing		
Travel	Various	Various	2.412	0.700	Various	1.000	Various	1.500	1QFY06	1.500	1QFY07	Continuing	Continuing		
Labor (Research Personnel)	CPFF	APL/JHU Laurel MD	11.580	6.934	11/03	6.615	11/04	8.190	1QFY06	3.638	1QFY07	Continuing	Continuing		
SBIR Assessment															
Subtotal Management			171.903	55.367		63.577		148.390		112.602		Continuing	Continuing		
Remarks:															
Total Cost			984.594	793.750		978.846		1,027.787		741.974		CONT.	CONT.		
Remarks:															

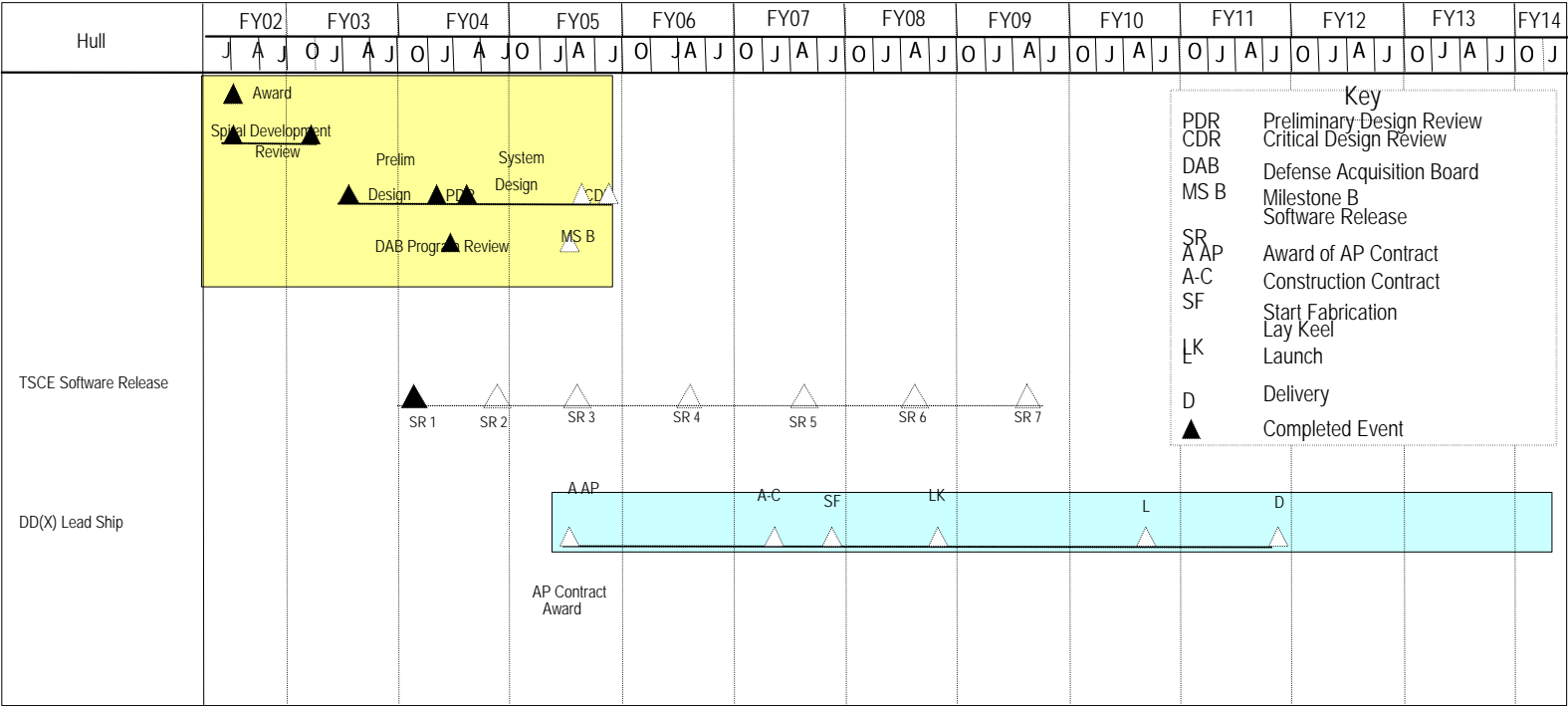
R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RD TEN Cost Analysis
(Exhibit R-3, page 8 of 61)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: February 2005		
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		2464 - DD(X) System Design, Development & Integration	



UNCLASSIFIED

CLASSIFICATION:

[illegible]

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 2466 - Multi-Function Radar (MFR)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	23.301	12.164	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 FY03 to support Developmental Test/Operational Assessment (DT/OA) land-based and at-sea testing.

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2466 - Multi-Function Radar (MFR)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">7.156</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	7.156	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	7.156	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>Engineering and Manufacturing Development (E&MD) phase of MFR hardware and software. Completed Factory Qualification Testing, conduct Factory Integration Testing, and began land based testing in FY04. Complete land based testing in FY05 and prepare for at-sea testing. Began transition to production efforts.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">5.402</td> <td style="text-align: center;">7.689</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	5.402	7.689	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	5.402	7.689	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>Government Engineering Services and Program Management support for E&MD. Perform oversight and assessment of MFR E&MD efforts including factory and land-based Test and Evaluation. Begin transition to production, including the development, fabrication, documentation and engineering support associated with the following efforts: (1) high speed automated manufacturing equipment, (2) test equipment and associated test program sets, (3) systems engineering and test engineering support and (4) failure analysis, parts engineering and configuration management. Provide support for integration of MFR into the DD(X) radar suite and overall ship systems. Provide engineering support for transition of MFR EDM to the MFR production system for DD(X).</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">8.644</td> <td style="text-align: center;">2.945</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	8.644	2.945	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	8.644	2.945	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>Evaluation, planning, documentation, scheduling and conducting of Developmental Test / Operational Assessment. Hardware / Software updates resulting from DT/OA. Complete Navy Land Based Testing.</p> </div>																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 12 of 61)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2466 - Multi-Function Radar (MFR)		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.099	1.530	0.000	0.000
RDT&E Articles Quantity				
Provide Program Management in support of the above milestones.				

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2466 - Multi-Function Radar (MFR)		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY 2005 President's Budget	22.790	12.277	0.015	0.000
FY 2006/2007 President's Budget	23.301	12.164	0.000	0.000
Total Adjustments	0.511	-0.113	-0.015	0.000
Summary of Adjustments				
SBIR	-0.155			
Cancelled Accounts	-0.058			
Inflation Adjustments	-0.021			
Execution Realignment	0.745			
Congressional Undistributed Reduction		-0.110		
Miscellaneous Adjustments		-0.003	-0.015	
Subtotal	0.511	-0.113	-0.015	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E, N / BA-5			PE 0604300N - DD(X) Total Ship Systems Engineering				2466 - Multi-Function Radar (MFR)			
D. OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0603513N / Shipboard Sys Component Dev	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942	CONT	CONT
BLI 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT	CONT
E. ACQUISITION STRATEGY:										
(U) In FY 1999, the Government selected a single MFR contractor (Raytheon) to begin Phase III E&MD. EDM delivered in FY 2003. The Navy truncated the remaining MFR efforts under the 845/804 OTA and incorporated into the Phase III DD(X) DA contract to better align and integrate MFR into the DD(X) development efforts.										
F. MAJOR PERFORMERS:										
DD(X) Design Agent - Northrop Grumman Ship Systems										
Major Subcontractors - Raytheon										
Government Field Activities -										
Universities -										

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-5			PE 0604300N - DD(X) Total Ship Systems Engineering			2466 - Multi-Function Radar (MFR)									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date (1)	FY 05 Cost	FY 05 Award Date (1)	FY 06 Cost	FY 06 Award Date (1)	FY 07 Cost	FY 07 Award Date (1)	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	CPAF/IF	Prime E&MD (Raytheon)	197.153	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	197.153		
	CPAF	DD(X) Design Agent	17.423	7.156	3QFY04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	24.579		
	CP	Various	12.414	0.000	N/A	0.000	N/A	0.000	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			226.990	7.156		0.000		0.000		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	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RD TEN Cost Analysis
(Exhibit R-3, page 16 of 61)

UNCLASSIFIED

CLASSIFICATION:

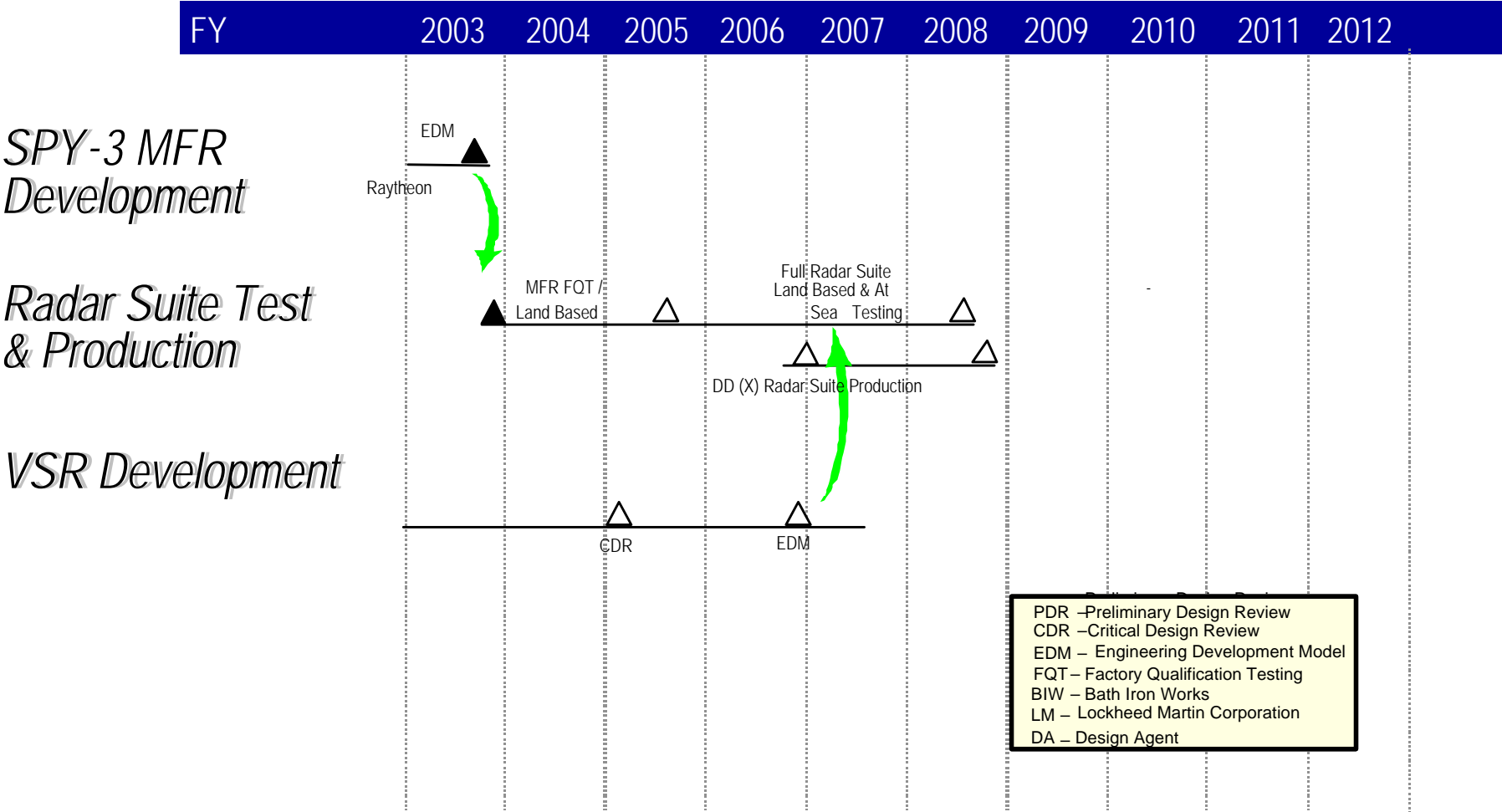
Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5			PROGRAM ELEMENT PE 0604300N - DD(X) Total Ship Systems Engineering			PROJECT NUMBER AND NAME 2466 - Multi-Function Radar (MFR)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	9.283	2.378	11/03	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.661	
	CPAF	SCSC Wallops Island VA	2.156	1.388	11/03	1.375	11/04	0.000	N/A	0.000	N/A	0.000	4.919	
	SS/CPFF	JHU/APL Laurel MD	2.441	0.565	11/03	0.080	11/04	0.000	N/A	0.000	N/A	0.000	3.086	
	WX	NSWC PHD Pt Hueneme CA	1.470	1.630	11/03	0.976	11/04	0.000	N/A	0.000	N/A	0.000	4.076	
	WX	NSWC DD Dahlgren VA	0.984	1.957	11/03	0.434	11/04	0.000	N/A	0.000	N/A	0.000	3.375	
	WR/RC	NAWC Pt Mugu CA	1.195	0.726	11/03	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			
Subtotal T&E			17.529	8.644		2.945		0.000		0.000		0.000	29.038	
Remarks:														
Contractor Engineering Support														
Government Engineering Support	WR	NSWC DD Dahlgren VA	5.577	1.500	11/03	2.203	11/04	0.000	N/A	0.000	N/A	0.000	9.280	
	WR	NSWC PHD Pt Hueneme CA	2.965	1.199	11/03	1.169	11/04	0.000	N/A	0.000	N/A	0.000	5.333	
	SS/CPFF	APL/JHU Laurel MD	3.484	0.188	11/03	1.680	11/04	0.000	N/A	0.000	N/A	0.000	5.352	
	WR	Various	8.392	2.515	11/03	2.637	11/04	0.000	N/A	0.000	N/A	0.000	13.544	
Program Management Support	C/CPFF	Various	4.807	2.099	11/03	1.530	11/04	0.000	N/A	0.000	N/A	0.000	8.436	
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			25.225	7.501		9.219		0.000		0.000		0.000	41.945	
Remarks:														
Total Cost			269.744	23.301		12.164		0.000		0.000		0.000	305.129	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering		PROJECT NUMBER AND NAME 2466 - Multi-Function Radar (MFR)	



UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-4a, RDTEN Schedule Detail
(Exhibit R-4a, page 19 of 61)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering			PROJECT NUMBER AND NAME 2735 - Volume Search Radar (VSR)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	68.474	57.118	10.082	5.071	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 track 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 FY06 to support Developmental Test/Operational Assessment (DT/OA) land-based and at-sea testing.

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2735 - Volume Search Radar (VSR)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">65.014</td><td style="text-align: center;">55.460</td><td style="text-align: center;">6.287</td><td style="text-align: center;">1.818</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">1</td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	65.014	55.460	6.287	1.818	RDT&E Articles Quantity	1			
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	65.014	55.460	6.287	1.818															
RDT&E Articles Quantity	1																		
<div style="border: 1px solid black; padding: 5px; min-height: 40px;">In Phase III DD(X) Design Agent will finalize S-Band VSR design and procurement Engineering Development Model (EDM) hardware and will begin fabrication. 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 FY05.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">3.217</td><td style="text-align: center;">1.658</td><td style="text-align: center;">3.195</td><td style="text-align: center;">2.653</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	3.217	1.658	3.195	2.653	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	3.217	1.658	3.195	2.653															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;">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.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.243</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.600</td><td style="text-align: center;">0.600</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.243	0.000	0.600	0.600	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.243	0.000	0.600	0.600															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;">Provide Program Management in support of the above milestones.</div>																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 2735 - Volume Search Radar (VSR)		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY 2005 President's Budget	72.243	57.667	0.002	0.000
FY 2006/2007 President's Budget	68.474	57.118	10.082	5.071
Total Adjustments	-3.769	-0.549	10.080	5.071
Summary of Adjustments				
SBIR	-1.951			
Inflation Adjustments	-0.067			
Execution Realignment	-1.638			
Congressional Undistributed Reductions		-0.516		
Realignment of VSR from 0603513N/4019			10.000	5.000
Miscellaneous Adjustments	-0.113	-0.033	0.080	0.071
Subtotal	-3.769	-0.549	10.080	5.071

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / BA-5		PE 0604300N - DD(X) Total Ship Systems Engineering			2735 - Volume Search Radar (VSR)					
D. OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0603513N / Shipboard Sys Component De	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942	CONT	CONT
BLI 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT	CONT
E. ACQUISITION STRATEGY:										
(U) Downselection to a DD(X) Design Agent occurred 3rd quarter FY2002. The DD(X) Design Agent will initiate fabrication delivery of the VSR EDM in FY 2004. MFR/VSR Radar Suite DT/OA is anticipated in FY 2003 through FY 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										

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-5			PE 0604300N - DD(X) Total Ship Systems Engineering			2735 - Volume Search Radar (VSR)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date (1)	FY 05 Cost	FY 05 Award Date (1)	FY 06 Cost	FY 06 Award Date (1)	FY 07 Cost	FY 07 Award Date (1)	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	OTA	DD(X) Industry Team	50.000	0.000	N/A	0.000	N/A					0.000	50.000	
	CPAF	DD(X) Design Agent (NGSS)	59.057	59.014	1QFY04	55.460	1QFY05	6.287	1QFY05	1.818	1QFY07	0.000	181.636	
Ship Integration	CPAF	Lockheed Martin SBAR N00024-02-C-5321		6.000	2QFY04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	6.000	
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			109.057	65.014		55.460		6.287		1.818		0.000	237.636	
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	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RD TEN Cost Analysis
(Exhibit R-3, page 24 of 61)

UNCLASSIFIED

CLASSIFICATION:

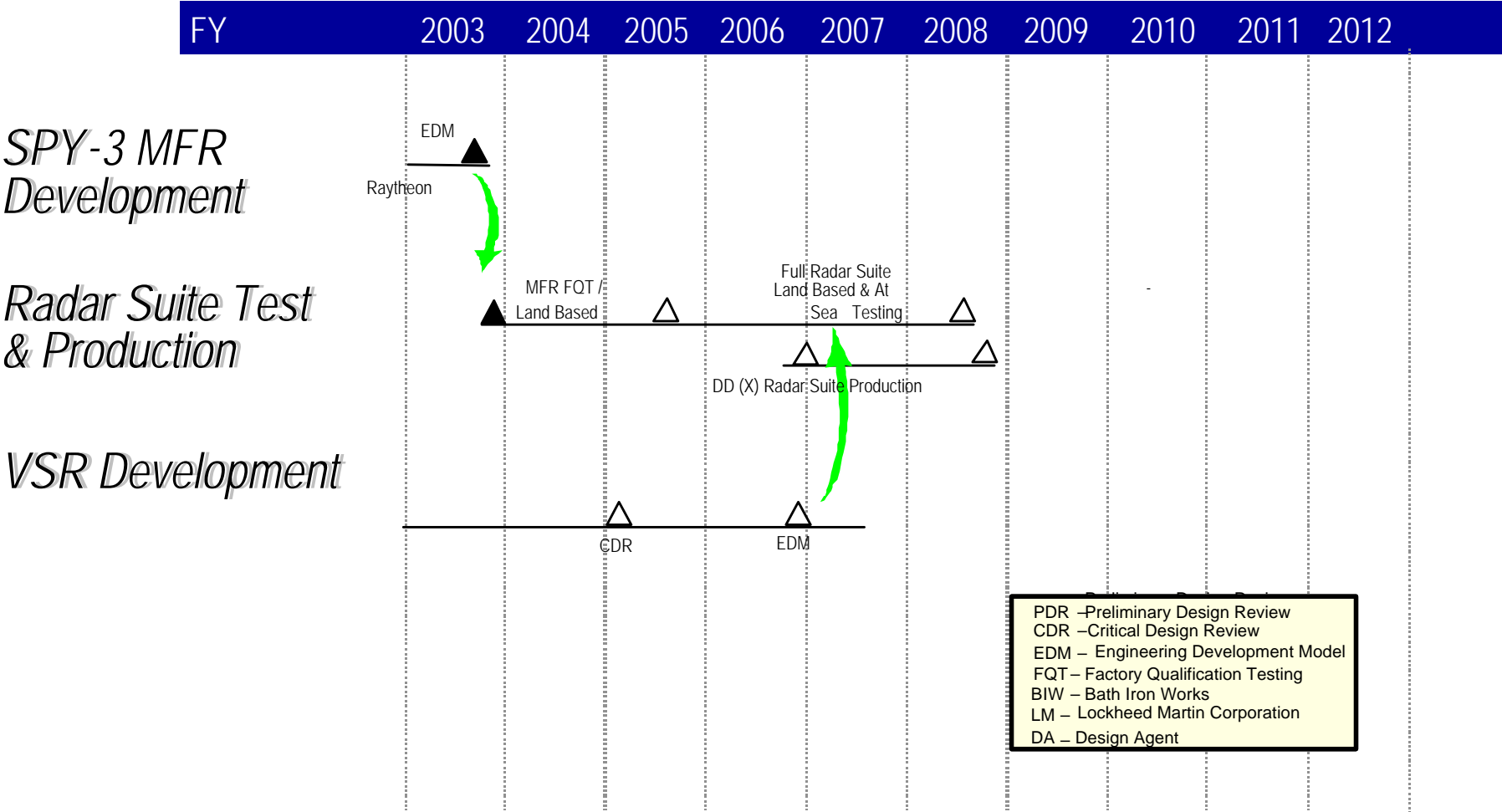
Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E, N / BA-5			PE 0604300N - DD(X) Total Ship Systems Engineering				2735 - Volume Search Radar (VSR)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test Evaluation	CPAF	SCSC Wallops Island VA	0.600	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.600	
	Various	Various	0.497	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.497	
Subtotal T&E			1.097	0.000		0.000		0.000		0.000		0.000	1.097	
Remarks:														
Contractor Engineering Support														
Government Engineering Support	WX	NSWC DD Dahlgren VA	3.506	0.200	11/03	0.000	N/A	0.800	11/05	0.800	11/06	0.000	5.306	
	WX	NSWC PHD Pt Hueneme CA	1.230	0.400	11/03	0.000	N/A	0.300	11/05	0.300	11/06	0.000	2.230	
	WX	Various	10.490	2.617	11/03	1.658	11/04	2.095	11/05	1.553	11/06	0.000	18.413	
Program Management Support	CPFF	Various	2.630	0.243	11/03	0.000	N/A	0.600	11/05	0.600	11/06	0.000	4.073	
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			17.856	3.460		1.658		3.795		3.253		0.000	30.022	
Remarks:														
Total Cost			128.010	68.474		57.118		10.082		5.071		0.000	268.755	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering		PROJECT NUMBER AND NAME 2735 - Volume Search Radar	



UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-4a, RD TEN Schedule Detail
(Exhibit R-4a, page 27 of 61)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering			PROJECT NUMBER AND NAME 3106 - Combat Systems Integration			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	0.000	0.000	50.349	65.203	75.088	74.967	79.635
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG(X), future cruiser, is required to fill the identified future missile defense gap. CG(X) is required to 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.

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 3106 - Combat Systems Integration																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">30.300</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	30.300	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	30.300															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">FY07: Commence system integration requirements studies, assess DD(X) combat system components applicable to CG(X), assess DD(X) combat systems components modifiable for CG(X), establish combat system integration Integrated Product Teams (IPTs).</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">5.049</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	5.049	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	5.049															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">FY07: Establish Technical Team responsible for participation, oversight and monitoring of system integration effort.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">15.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	15.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	15.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">FY07: Determine test site infrastructure requirements and commence test site infrastructure development.</div>																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 3106 - Combat Systems Integration		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	0.000	0.000	0.000	0.000
FY 2006/2007 President's Budget	0.000	0.000	0.000	50.349
Total Adjustments	0.000	0.000	0.000	50.349
Summary of Adjustments				
Establishment of Combat Systems Integration Project				50.349
Subtotal	0.000	0.000	0.000	50.349
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering			PROJECT NUMBER AND NAME 3106 - Combat Systems Integration			
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
BLI 211400 / SCN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,210.588		
E. ACQUISITION STRATEGY:										
(U) Award Prime Design Agent contract for CG(X) Combat System Integration. Leverage DD(X) efforts to maximum extent possible to include commonality of combat system hardware and re-use of core combat system system computer software										
F. MAJOR PERFORMERS:										
Contractors - TBD										
Field Activities - NSWC Dahlgren, NSWC Port Hueneme, NSWC Corona										
Universities - N/A										

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-5					PE 0604300N - DD(X) Total Ship Systems Engineering				3106 - Combat Systems Integration					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date (1)	FY 05 Cost	FY 05 Award Date (1)	FY 06 Cost	FY 06 Award Date (1)	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
													0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	TBD	TBD								45.000	1QFY07	CONT.	CONT.	TBD
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		45.000		CONT.	CONT.	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RD TEN Cost Analysis
(Exhibit R-3, page 32 of 61)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5					PROGRAM ELEMENT PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 3106 - Combat Systems Integration					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test Evaluation													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	TBD	TBD								1.172	1QFY07	Continuing	Continuing	
												Continuing	Continuing	
Government Engineering Support	TBD	TBD								4.177	1QFY07	Continuing	Continuing	
												Continuing	Continuing	
												Continuing	Continuing	
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		5.349		Continuing	Continuing	
Remarks:														
Total Cost			0.000	0.000		0.000		0.000		50.349		Continuing	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE:	February 2005
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	3106 - Combat Systems Integration
<div><div>CG(X)</div><div><div>200420052007200820102011</div><div>JCIDS AnalysisCompetitionMS A StartPDRMS BLead Ship AwardCDR</div></div></div>			
R-1 SHOPPING LIST - Item No. 101			

SHOPPING LIST - Item No. 1
UNCLASSIFIED

R-1 SHOPPING LIST - Item No.

Exhibit R-4a, RD TEN Schedule Detail
(Exhibit R-4a, page 35 of 61)

February 2005

PROGRAM ELEMENT	DESCRIPTION	UNIT	GRADE	SEMESTER	TEACHER
1. Introduction to the Program	Overview of the program and its goals.	1	9	1	Mr. Smith
2. Fundamentals of Mathematics	Basic mathematical concepts and operations.	2	9	2	Ms. Jones
3. Algebra and Geometry	Algebraic equations and geometric shapes.	3	9	3	Mr. Smith
4. Calculus and Trigonometry	Calculus and trigonometric functions.	4	9	4	Ms. Jones
5. Statistics and Probability	Statistical analysis and probability theory.	5	9	5	Mr. Smith
6. Advanced Mathematics	Advanced mathematical topics and applications.	6	9	6	Ms. Jones
7. Computer Science and Programming	Introduction to computer science and programming.	7	9	7	Mr. Smith
8. Physics and Chemistry	Basic principles of physics and chemistry.	8	9	8	Ms. Jones
9. Biology and Earth Science	Basic principles of biology and earth science.	9	9	9	Mr. Smith
10. Social Studies and History	Basic principles of social studies and history.	10	9	10	Ms. Jones
11. Language Arts and Writing	Basic principles of language arts and writing.	11	9	11	Mr. Smith
12. Physical Education and Health	Basic principles of physical education and health.	12	9	12	Ms. Jones

PE 0604300N - DD(X) Total Ship Systems Engineering

3106 - Combat Systems Integration

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

Milestone A

1Q-3Q

Preliminary Design Review

1Q-3Q

Milestone B

3Q-4Q

Lead Ship Award

4Q

Critical Design Review

1Q

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 3107 - CG (X) Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	0.000	30.110	60.035	162.700	204.231	225.895	241.868
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG(X), future cruiser, is required to fill the identified future missile defense gap. CG(X) is required to 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, Mechanical 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, technical documentation and system testing to ensure fully functional systems integration.

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 3107 - CG (X) Development																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">27.000</td><td style="text-align: center;">56.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">FY06: Commence CG(X) system concept development. System concept includes a top level CG(X) concept, and initial CG(X)) performance specification, top level cost estimates, and Life Cycle Engineering and Support (LCE&S) concepts. FY07: Continue development of system functional baseline, refinement of performance specifications, development and validation of cost estimates, and development of total ship design leading to Preliminary Design Review (PDR).</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	27.000	56.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	27.000	56.000															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.249</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">FY06: Develop Interface Control Document (ICD), CG(X) Design Reference Mission (DRM) and concept of operations (CONOPS).</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.249	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.249	0.000															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.861</td><td style="text-align: center;">4.035</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Establish Technical Team responsible for participation, oversight and monitoring of system concept. Provide engineering expertise to evaluate/support concepts in HM&E, Signatures, C3ISR, T&E, and LCE&S.</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.861	4.035	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.861	4.035															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 3107 - CG (X) Development		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	0.000	0.000	0.000	0.000
FY 2006/2007 President's Budget	0.000	0.000	30.110	60.035
Total Adjustments	0.000	0.000	30.110	60.035
Summary of Adjustments				
Establish CG(X) Development project			30.110	60.035
Subtotal	0.000	0.000	30.110	60.035
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering			PROJECT NUMBER AND NAME 3107 - CG (X) Development			
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
BLI 211400 / SCN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,210.588		
E. ACQUISITION STRATEGY:										
F. MAJOR PERFORMERS:										
Contractors - TBD										

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-5					PE 0604300N - DD(X) Total Ship Systems Engineering				3107 - CG (X) Development					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	TBD	TBD						27.000	1QFY06	56.000	1QFY07	Continuing	Continuing	
												0.000	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		27.000		56.000		Continuing	Continuing	
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	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RD TEN Cost Analysis
(Exhibit R-3, page 40 of 61)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-5					PROGRAM ELEMENT PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 3107 - CG (X) Development					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test Evaluation													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support		TBD						1.249	1QFY06	1.358	1QFY07	Continuing	Continuing	
		TBD						1.861	1QFY06	2.677	1QFY07	Continuing	Continuing	
Government Engineering Support												Continuing	Continuing	
												Continuing	Continuing	
												Continuing	Continuing	
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		3.110		4.035		Continuing	Continuing	
Remarks:														
Total Cost			0.000	0.000		0.000		30.110		60.035		Continuing	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE:	February 2005
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
<div><div>CG(X)</div><div><div>2004</div><div>2005</div><div>2007</div><div>2008</div><div>2010</div><div>2011</div></div><div><div>JCIDS Analysis</div><div>Competition</div><div>MS A Start</div><div>PDR MS B</div><div>CIDR</div></div><div><div></div><div></div><div>Prelim Design</div><div>Lead Ship Award</div><div></div></div></div>			

UNCLASSIFIED

CLASSIFICATION:

[illegible]

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 4009 - Advanced Gun System (AGS)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	47.459	45.951	46.812	47.003	47.788	48.647	49.552	50.338
RDT&E Articles Qty	1							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Long Range Land Attack Projectile (LRLAP) fired from AGS has a range of over 83 nautical miles and will deliver a high explosive unitary payload with GPS accuracy. 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 2009. These funds provide for the development of the Advanced Gun System (AGS) 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.

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 4009 - Advanced Gun System (AGS)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">12.300</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">1</td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	12.300	0.000	0.000	0.000	RDT&E Articles Quantity	1			
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	12.300	0.000	0.000	0.000															
RDT&E Articles Quantity	1																		
Fabricate Assembly and test Magazine Engineering Development Model (EDM).																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">9.253</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	9.253	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	9.253	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Conduct Upper Gun Mount EDM Testing																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">7.823</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	7.823	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	7.823	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Fabricate Assembly and Test Integration System Control (ISC).																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 4009 - Advanced Gun System (AGS)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">12.640</td><td style="text-align: center;">20.328</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	12.640	20.328	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	12.640	20.328	0.000	0.000															
RDT&E Articles Quantity																			
Continue LRLAP EDM development and testing.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">5.443</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	5.443	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	5.443	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Support Ship Design development with Gun, Magazine, LRLAP integration efforts.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">18.466</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	18.466	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	18.466	0.000	0.000															
RDT&E Articles Quantity																			
Commence integration of Gun, Magazine, ISC EDMs.																			

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 4009 - Advanced Gun System (AGS)		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	7.157	0.000	0.000
RDT&E Articles Quantity				
Commence Land Based testing of AGS EDM.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	36.812	37.003
RDT&E Articles Quantity				
LRLAP System Design and Development.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	5.000	5.000
RDT&E Articles Quantity				
LRLAP Qualification and Development testing.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	5.000	5.000
RDT&E Articles Quantity				
AGS Qualification				

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																																		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME PE 0604300N - DD(X) Total Ship Systems Engineering	PROJECT NUMBER AND NAME 4009 - Advanced Gun System (AGS)																																																																			
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;"></th> <th style="text-align: right; width: 12.5%;">FY 2004</th> <th style="text-align: right; width: 12.5%;">FY 2005</th> <th style="text-align: right; width: 12.5%;">FY 2006</th> <th style="text-align: right; width: 12.5%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 2005 President's Budget</td> <td style="text-align: right;">50.410</td> <td style="text-align: right;">46.455</td> <td style="text-align: right;">46.641</td> <td style="text-align: right;">46.717</td> </tr> <tr> <td>FY 2006/2007 President's Budget</td> <td style="text-align: right;">47.459</td> <td style="text-align: right;">45.951</td> <td style="text-align: right;">46.812</td> <td style="text-align: right;">47.003</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-2.951</td> <td style="text-align: right; border-top: 1px solid black;">-0.504</td> <td style="text-align: right; border-top: 1px solid black;">0.171</td> <td style="text-align: right; border-top: 1px solid black;">0.286</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.447</td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td style="text-align: right;">-1.266</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Inflation Adjustments</td> <td style="text-align: right;">-0.047</td> <td></td> <td style="text-align: right;">0.415</td> <td style="text-align: right;">0.540</td> </tr> <tr> <td> Execution Realignments</td> <td style="text-align: right;">-1.511</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Cancelled Accounts</td> <td style="text-align: right;">-0.127</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Miscellaneous</td> <td></td> <td style="text-align: right;">-0.057</td> <td style="text-align: right;">-0.244</td> <td style="text-align: right;">-0.254</td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-2.951</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.504</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.171</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.286</td> </tr> </tbody> </table> <p>Schedule:</p> <p style="margin-left: 40px;">Not Applicable</p> <p>Technical:</p> <p style="margin-left: 40px;">Not Applicable</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY 2005 President's Budget	50.410	46.455	46.641	46.717	FY 2006/2007 President's Budget	47.459	45.951	46.812	47.003	Total Adjustments	-2.951	-0.504	0.171	0.286	Summary of Adjustments					Congressional undistributed reductions		-0.447			SBIR/STTR Transfer	-1.266				Inflation Adjustments	-0.047		0.415	0.540	Execution Realignments	-1.511				Cancelled Accounts	-0.127				Miscellaneous		-0.057	-0.244	-0.254	Subtotal	-2.951	-0.504	0.171	0.286
	FY 2004	FY 2005	FY 2006	FY 2007																																																																	
Funding:																																																																					
FY 2005 President's Budget	50.410	46.455	46.641	46.717																																																																	
FY 2006/2007 President's Budget	47.459	45.951	46.812	47.003																																																																	
Total Adjustments	-2.951	-0.504	0.171	0.286																																																																	
Summary of Adjustments																																																																					
Congressional undistributed reductions		-0.447																																																																			
SBIR/STTR Transfer	-1.266																																																																				
Inflation Adjustments	-0.047		0.415	0.540																																																																	
Execution Realignments	-1.511																																																																				
Cancelled Accounts	-0.127																																																																				
Miscellaneous		-0.057	-0.244	-0.254																																																																	
Subtotal	-2.951	-0.504	0.171	0.286																																																																	

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME		
RDT&E, N / BA-5				PE 0604300N - DD(X) Total Ship Systems Engineering				4009 - Advanced Gun System (AGS)		
D. OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0603513N / Shipboard Sys Component De	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942	CONT	CONT
BLI 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT	CONT
E. ACQUISITION STRATEGY:										
<p>(U) The Navy conducted a comparison of concepts for the DD(X) Advanced Gun System, the results of which were reported to Congress by SECNAV on 10/99. The Advanced Gun System will be acquired in conjunction with the DD(X) development schedule. Initial phases were conducted under section 845/804 other transaction authority. Initial phases include: Phase I – Concept Formulation, Phase II - Initial Prototype Development. Downselection to a single DD(X) Design Agent occurred in 3rd quarter FY02 to begin Phase III. The AGS EDM development will continue under this contract. The AGS Development, Qualification and Transition to Production will complete under the DD(X) Phase IV contract . This contract will also include procurement of the AGS for DD(X) Leadship.</p>										
F. MAJOR PERFORMERS:										
<p>Contractors - United Defense Limited Partnership and DD(X) Design Agent - Northrop Grumman Ship Systems</p> <p>Field Activities - NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme, NSWC Port Hueneme Louisville detachment, NSWC Indian Head</p> <p>Universities - N/A</p>										

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY						PROGRAM ELEMENT				PROJECT NUMBER AND NAME				
RDT&E, N / BA-5						PE 0604300N - DD(X) Total Ship Systems Engineering				4009 - Advanced Gun System (AGS)				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date (1)	FY 05 Cost	FY 05 Award Date (1)	FY 06 Cost	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	157.342	43.893	1QFY04	41.449	1QFY05	40.000	1QFY06	40.000	1QFY07			242.684
	845/804	DD(X) Industry Teams	177.435									0.000	177.435	177.435
Ship Integration	TBD	TBD											CONT.	
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			334.777	43.893		41.449		40.000		40.000		CONT.	CONT.	
Remarks: (1) The DD(X) Design Agent contract was awarded in April 2002.														
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	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RD TEN Cost Analysis
(Exhibit R-3, page 50 of 61)

UNCLASSIFIED

CLASSIFICATION:

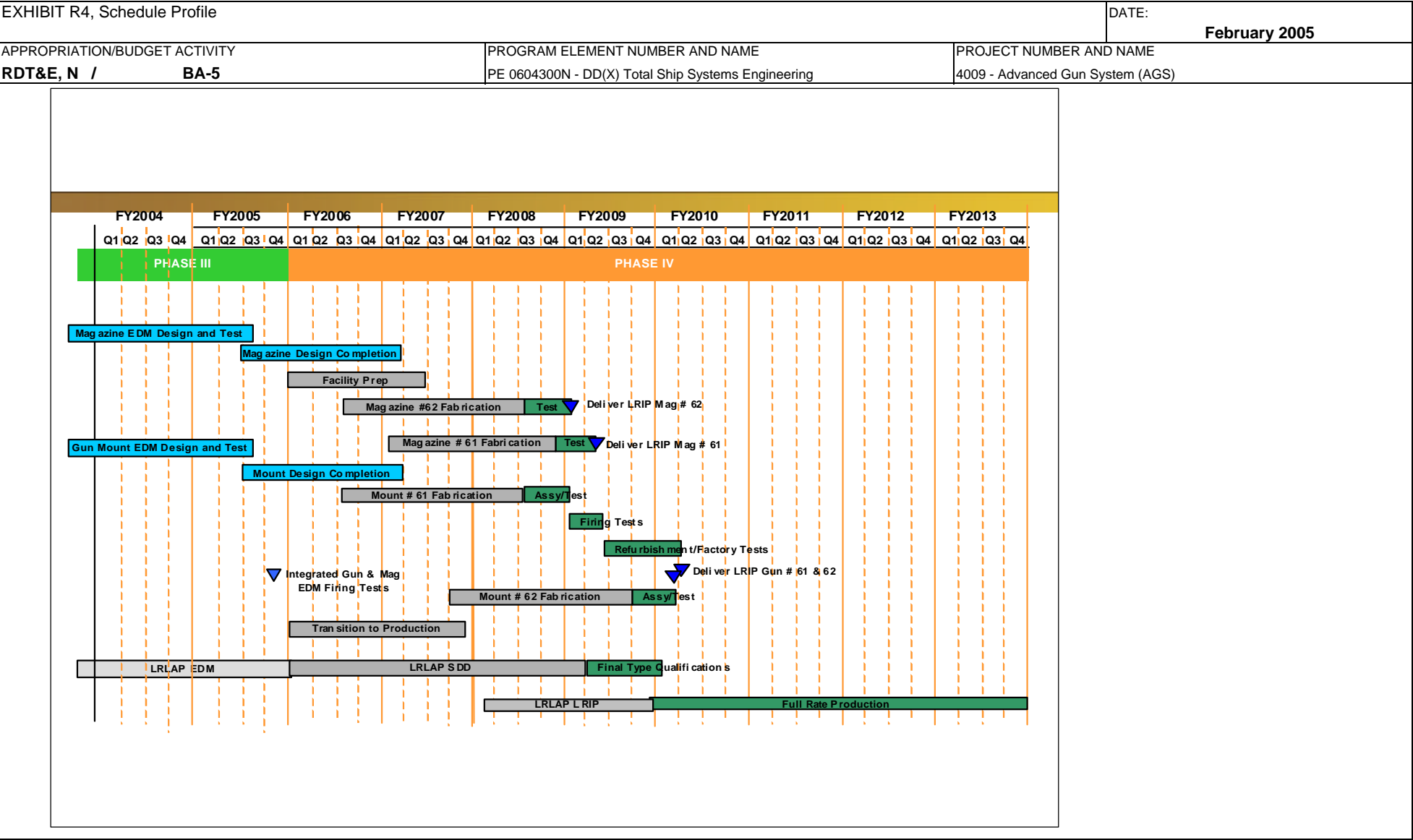
Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5						PROGRAM ELEMENT PE 0604300N - DD(X) Total Ship Systems Engineering				PROJECT NUMBER AND NAME 4009 - Advanced Gun System (AGS)				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test Evaluation													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	GSA/CPFF	Anteon Arlington VA	5.220	1.228	10/03	0.578	10/04	1.641	10/05	1.717	10/06	Continuing	Continuing	
Government Engineering Support	WX	NSWC DD Dahlgren VA	14.011	1.051	10/03	2.496	10/04	2.332	10/05	2.314	10/06	Continuing	Continuing	
	WX	NSWC PHD Pt Hueneme CA	6.942	0.900	10/03	1.103	10/04	2.339	10/05	2.472	10/06	Continuing	Continuing	
	WX	Other Gov't Activities	10.824	0.387	Various	0.325	Various	0.500	10/05	0.500	10/06	Continuing	Continuing	
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			36.997	3.566		4.502		6.812		7.003		0.000	52.068	
Total Cost			371.774	47.459		45.951		46.812		47.003		0.000	512.187	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

Exhibit R-3, RDTE&E Cost Analysis
(Exhibit R-3, page 51 of 61)

CLASSIFICATION:



SHOPPING LIST - Item No. **UNCLASSIFIED**

R-1 SHOPPING LIST - Item No.

101

(Exhibit R-4a, page 53 of 61)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604300N/ DD(X) Total Ship Sys Engineering			PROJECT NUMBER AND NAME 4010/Integrated Power Systems on DD(X)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	69.114	59.495	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p>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 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 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.</p> <p>- (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.</p> <p>- (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.</p>								

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 54 of 61)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604300N/ DD(X) Total Ship Sys Engineering	PROJECT NUMBER AND NAME 4010/Integrated Power Systems on DD(X)		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	69.114	59.495	0.000	0.000
RDT&E Articles Quantity	0	0	0	0
<p>Platform Specific Development: Fabricate DD(X) IPS Engineering Development Model (EDM) for land based testing. Perform factory acceptance tests of major components. In support of DD(X) IPS EDM land based testing, complete test site preparations and prepare test plans. Deliver DD(X) IPS EDM to land based. Install, checkout, integrate and conduct testing.</p>				

R-1 SHOPPING LIST - Item No.

101

UNCLASSIFIED

Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 55 of 61)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																													
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604300N/ DD(X) Total Ship Sys Engineering	PROJECT NUMBER AND NAME 4010/Integrated Power Systems on DD(X)																																																														
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY 2005 President's Budget</td> <td style="text-align: right;">72.202</td> <td style="text-align: right;">60.068</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>FY 2006/2007 President's Budget</td> <td style="text-align: right;">69.114</td> <td style="text-align: right;">59.495</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-3.088</td> <td style="text-align: right; border-top: 1px solid black;">-0.573</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.560</td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td style="text-align: right;">-2.006</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Inflation Adjustments</td> <td style="text-align: right;">-0.067</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Execution Realignment</td> <td style="text-align: right;">-0.832</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Cancelled Accounts</td> <td style="text-align: right;">-0.183</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Miscellaneous</td> <td></td> <td style="text-align: right;">-0.013</td> <td></td> <td></td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-3.088</td> <td style="text-align: right; border-top: 1px solid black;">-0.573</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> </tbody> </table> <p>Schedule:</p> <p style="padding-left: 20px;">Not Applicable</p> <p>Technical:</p> <p style="padding-left: 20px;">Not Applicable</p>					Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY 2005 President's Budget	72.202	60.068	0.000	0.000	FY 2006/2007 President's Budget	69.114	59.495	0.000	0.000	Total Adjustments	-3.088	-0.573	0.000	0.000	Summary of Adjustments					Congressional undistributed reductions		-0.560			SBIR/STTR Transfer	-2.006				Inflation Adjustments	-0.067				Execution Realignment	-0.832				Cancelled Accounts	-0.183				Miscellaneous		-0.013			Subtotal	-3.088	-0.573	0.000	0.000
Funding:	FY 2004	FY 2005	FY 2006	FY 2007																																																												
FY 2005 President's Budget	72.202	60.068	0.000	0.000																																																												
FY 2006/2007 President's Budget	69.114	59.495	0.000	0.000																																																												
Total Adjustments	-3.088	-0.573	0.000	0.000																																																												
Summary of Adjustments																																																																
Congressional undistributed reductions		-0.560																																																														
SBIR/STTR Transfer	-2.006																																																															
Inflation Adjustments	-0.067																																																															
Execution Realignment	-0.832																																																															
Cancelled Accounts	-0.183																																																															
Miscellaneous		-0.013																																																														
Subtotal	-3.088	-0.573	0.000	0.000																																																												

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT NUMBER AND NAME 0604300N/ DD(X) Total Ship Sys Engineering			PROJECT NUMBER AND NAME 4010/Integrated Power Systems on DD(X)			

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
PE 0603513N / Shipboard Sys Component De	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942	CONT	CONT
BLI 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT	CONT

E. ACQUISITION STRATEGY:

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

F. MAJOR PERFORMERS:

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

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

UNCLASSIFIED

Remarks:

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

UNCLASSIFIED

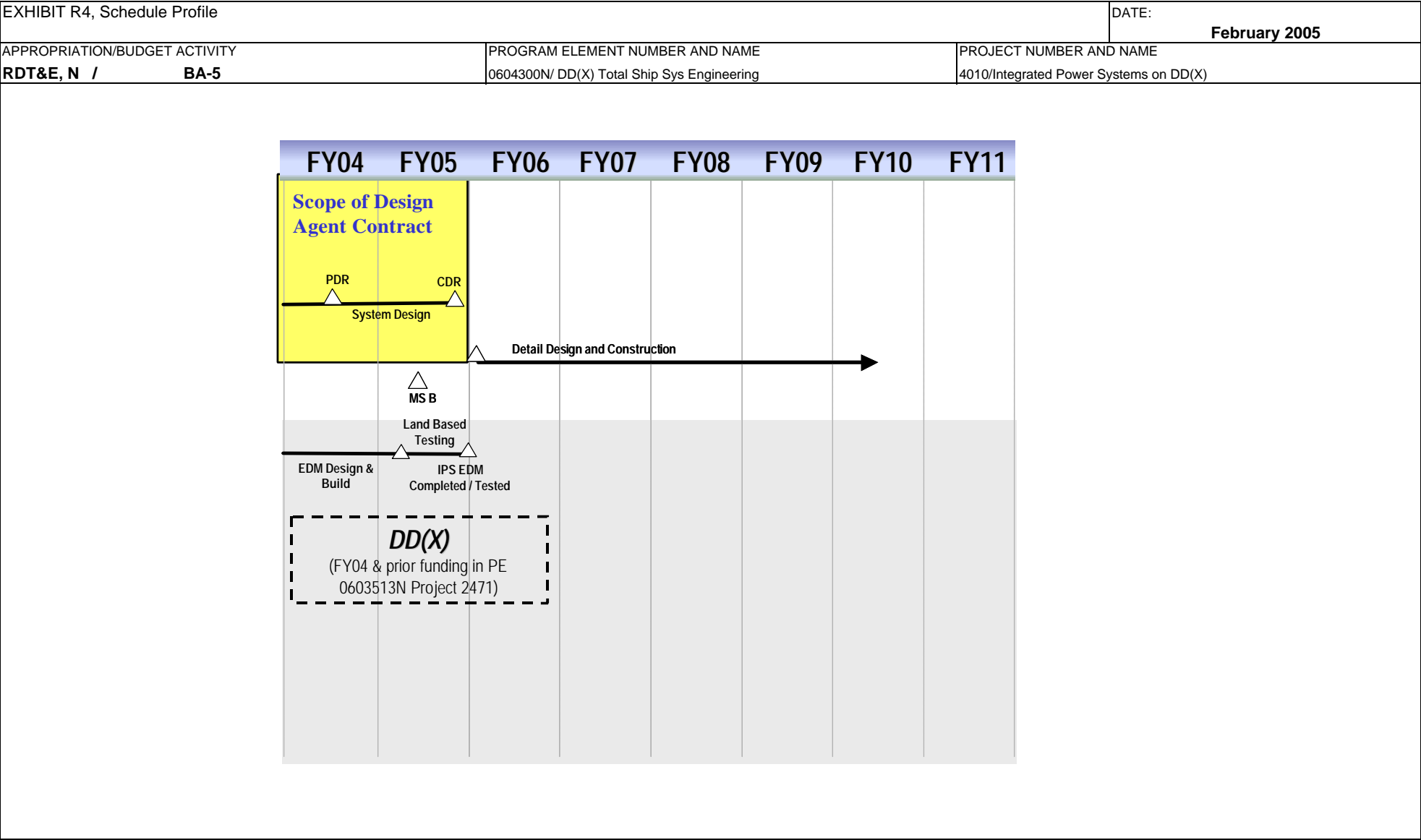
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5						PROGRAM ELEMENT 0604300N/ DD(X) Total Ship Sys Engineering				PROJECT NUMBER AND NAME 4010/Integrated Power Systems on DD(X)				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		CONT	CONT	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		CONT	CONT	
Remarks:														
Total Cost			221.161	69.114		59.495		0.000		0.000		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 101

UNCLASSIFIED

CLASSIFICATION:



UNCLASSIFIED

Exhibit R-4a, RDTEN Schedule Detail
(Exhibit R-4a, page 61 of 61)

R-1 SHOPPING LIST - Item No. 101