

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2004	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE			
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5					Ship Contract Design/Live Fire T&E PE 0604567N			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		196.697	134.061	130.908	110.862	97.160	51.263	22.961
2301 / CVN-77 Design		68.363	28.320	25.495	5.858	0.733	0.000	0.000
4007 / CVN 21 LFT&E		9.015	8.699	8.605	8.158	8.108	0.414	0.421
4008 / CVN 21 Total Ship Integration		66.314	23.430	37.905	35.100	21.970	6.522	0.000
1803 / Ship Contract Design		14.928	1.768	10.249	18.792	18.813	12.230	7.332
2198 / Life Fire Test and Evaluation		0.000	4.345	4.474	2.722	1.545	0.000	0.000
2465/9235/9236 / LHA(R)		38.077	64.137	44.180	40.232	45.991	32.097	15.208
9389 / LHD-8 Performance Based Logistics		0.000	1.384	0.000	0.000	0.000	0.000	0.000
9390 / UNOLS Research Vessel *		0.000	1.978	0.000	0.000	0.000	0.000	0.000
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
This Program Element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of engineering, programmatic and acquisition documentation including ship specifications (including performance specifications) and contractual documentation associated with acquisition of Navy ships. This PE also supports the Congressionally mandated Live Fire Test and Evaluation program for new ship designs.								
Contract Design has traditionally been the engineering development of the technical and contractual definition of the ship design (including ship specifications and drawings) to a level of detail sufficient for shipbuilders to make a sound estimate of the construction cost and schedule. Additionally, the contract design package developed under this PE has provided the technical baseline from which the Navy selects the shipbuilder who then develops the detail design package required to support the construction and eventual delivery of the ship. This PE also supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions, and supports engineering planning and ship affordability studies.								
Under Acquisition Reform for new design ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering Integrated Product and Process Development (IPPD) process extending through and after contract award. This serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder, system programs, and suppliers. Government/Industry Integrated Product Team(s) (IPTs) will utilize the IPPD process to develop the design in an Integrated Product and Data Environment (IPDE). The design approach is part of an acquisition strategy that is based on commercial practices and incorporates a phased technical definition. To this end, the costs associated with the construction of CVN(X)1 are now included in RDT&E.								
* Funding in Project 9390 applies to Office of Naval Research Program Element 0601153N.								

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E PE 0604567N				PROJECT NUMBER AND NAME CVN 77 Design 2301		
COST (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	68.363	28.320	25.495	5.858	0.733	0.000	0.000
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project encompasses CVN 77 design. FY03 and prior years also encompass CVN 21 design. Prior years also encompassed CVN 21 LFT&E. The traditional distinct phasing of the design process for aircraft carriers has been replaced with a continuous concurrent engineering regime incorporating the methodology, measurement, and management elements of the Navy's Integrated Product and Process Development (IPPD) process, extending it beyond contract award. The CVN 77 Warfare Systems Integration (WSI) effort will be managed within a technology change management process at contract award to allow further system development. This will ensure that the latest technologies are properly incorporated during the 8 year construction period for an aircraft carrier, without costly contract changes. The IPPD process serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder, aviation programs, and suppliers. Government/Industry Integrated Product Teams (IPTs) utilize the IPPD process within an Integrated Data Environment (IDE) to design and develop ship construction Contract Data Packages (CDPs). The CVN 77 design approach is part of an acquisition strategy that is based on incorporating best available commercial practices and a phased technical definition.

The CVN 77 research and development investment identifies and validates transition technologies for incorporation into the CVN 77 design. These technologies will enhance shipboard workload reductions, reduce life cycle costs for CVN 77, provide benefits to the other nine ships of the NIMITZ class, and mitigate future risk for CVN 21. The pivotal investment area is transition technology insertion into, and the functional combining of, traditional combat system, Command, Control, Computers and Communications, Intelligence, Surveillance and Reconnaissance (C4ISR), and aviation functions into a cohesive integrated system.

CVN 21 Total Ship Integration, the integration of major systems into ship design, is a continuation of the effort commenced within PE0603512N, PU 42693. This investment in CVN 21 design started in FY 02 and continues through FY 05. Design efforts for FY04-FY05 have been realigned to PE 0604567N, PU 44008. This design integration effort includes redesign and rearrangement of ship components; redesign of hull, mechanical and electrical (HM&E) and auxiliary systems (air-conditioning and ventilation, power distribution and generation, airborne noise management, reduction of steam, environmental safety and health (ESH) and interface control; redesign of water production and tankage; electric loads analysis; redesign of power distribution; analysis and redesign of structure; analysis, tracking and management of changes in weight distribution and stability; and analysis and redesign of survivability systems.

The CVN 21 contract design effort encompasses those tasks required to develop the contract data package necessary to support CVN 21 procurement. The CVN 21 LFT&E effort consists of vulnerability assessments of the new CVN 21 design and addresses congressionally mandated LFT&E. LFT&E efforts in FY03 and beyond have been realigned to PE 0604567N, PU 44007.

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B. Accomplishments/Planned Program																
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Accomplishments/Effort/Subtotal Cost	21.300															
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<div style="border: 1px solid black; padding: 5px; min-height: 60px;"> <p>CVN 21 Design: Develop CVN 21 MTG technical manual. Continue manufacture and assembly of prototype turbine and generator designs. Upgrade contractor facility in preparation for qualification testing. Continue development of qualification test specifications. CVN 21 Product Development efforts for FY03 and subsequent years are covered under Project 44008.</p> </div>																
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<div style="border: 1px solid black; padding: 5px; min-height: 60px;"> <p>CVN 77 Design: Complete warfare system re-baseline design and conduct re-baseline review. Develop, review, adjudicate, and approve the warfare system CDP. Monitor PARM improvements targeted at reducing the operational and support costs of the ship's warfare system, specifically for data exchange across operational areas, data fusion, and integrated displays for operators, and consideration for use of the Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC). Identify Pre-Planned Product Improvement (P3I) candidates and develop warfare system P3I Technical Definition Packages (TDPs), including flexible island design and other distributed system margin modifications. Sustain efforts to insure warfare system interoperability and design consistency in accordance with the Navy's life cycle support strategy.</p> </div>																

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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2003</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget: (FY 04 Pres Controls)</td> <td style="text-align: right;">49.189</td> <td style="text-align: right;">28.674</td> <td style="text-align: right;">25.648</td> </tr> <tr> <td>Current President's Budget: (FY 05 Pres Controls)</td> <td style="text-align: right;">68.363</td> <td style="text-align: right;">28.320</td> <td style="text-align: right;">25.495</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">19.174</td> <td style="text-align: right; border-top: 1px solid black;">-0.354</td> <td style="text-align: right; border-top: 1px solid black;">-0.153</td> </tr> <tr> <td colspan="4" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Technical Adjustment</td> <td style="text-align: right;">21.300</td> <td></td> <td></td> </tr> <tr> <td> SBIR reduction</td> <td style="text-align: right;">-1.847</td> <td></td> <td></td> </tr> <tr> <td> Miscellaneous Adjustments</td> <td style="text-align: right;">-0.279</td> <td></td> <td style="text-align: right;">-0.016</td> </tr> <tr> <td> SPAWAR Service Cost Adjustment</td> <td></td> <td style="text-align: right;">-0.035</td> <td style="text-align: right;">-0.028</td> </tr> <tr> <td> Congressional undistributed reduction</td> <td></td> <td style="text-align: right;">-0.319</td> <td></td> </tr> <tr> <td> NWCF Rate Adjustment</td> <td></td> <td></td> <td style="text-align: right;">-0.026</td> </tr> <tr> <td> Inflation Adjustment</td> <td></td> <td></td> <td style="text-align: right;">-0.083</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">19.174</td> <td style="text-align: right; border-top: 1px solid black;">-0.354</td> <td style="text-align: right; border-top: 1px solid black;">-0.153</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p>Not Applicable</p> <p style="margin-top: 40px;">Technical:</p> <p>Not Applicable.</p>				Funding:	FY 2003	FY 2004	FY 2005	Previous President's Budget: (FY 04 Pres Controls)	49.189	28.674	25.648	Current President's Budget: (FY 05 Pres Controls)	68.363	28.320	25.495	Total Adjustments	19.174	-0.354	-0.153	Summary of Adjustments				Technical Adjustment	21.300			SBIR reduction	-1.847			Miscellaneous Adjustments	-0.279		-0.016	SPAWAR Service Cost Adjustment		-0.035	-0.028	Congressional undistributed reduction		-0.319		NWCF Rate Adjustment			-0.026	Inflation Adjustment			-0.083	Subtotal	19.174	-0.354	-0.153
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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E PE 0604567N			PROJECT NUMBER AND NAME CVN 77 Design 2301			
D. OTHER PROGRAM FUNDING SUMMARY:									
<u>Line Item No. & Name</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>
BLI 200100 Carrier Replacement Program	484	1,177	626	612	2,970	3,251	1,569	Continuing	Continuing
PE 0603512N Carrier System Development	80	155	157	132	80	288	370	Continuing	Continuing
 E. ACQUISITION STRATEGY:									
<p>Future Carriers will be acquired/managed using a phased technology insertion strategy. Technologies will reduce total ownership costs on Future Carriers and the previous nine ships of the NIMITZ class. Future Carrier Detail Design and Construction Contracts have historically been awarded on a sole source basis to Northrop Grumman Newport News Shipbuilding (NGNN). NGNN has also been awarded CPAF R&D contracts for the CVN 77 warfare system and CVN 21 IPPD efforts .</p>									
 F. MAJOR PERFORMERS:									
<p>Northrop Grumman Newport News Shipbuilding , Newport News Virginia SPAWAR, San Diego Ca NAVSEA, Washington DC</p>									

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design/LFT&E PE 0604567N			CVN 77 Design 2301						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
CVN 77 Product Development	PR,SS	NGNN, Newport News VA	100.880	20.245	12/02-06/03	3.000	12/03	2.000	12/04	Continuing	Continuing	
	SS, CPFF	Bettis Atomic Pwr Labs, Pa	42.691							0.000	42.691	42.691
	WX	NAWCS Lakehurst NJ, Pax Md	5.278	0.360	12/02-06/03	0.450	12/03	0.750	12/04	Continuing	Continuing	Continuing
	WX	NSWC Dahlgren	15.018	7.402	12/02-06/03	2.700	12/03	1.600	12/04	Continuing	Continuing	Continuing
	PD/WX	SPAWAR, San Diego Ca	3.875	6.693	12/02-06/03	7.950	12/03	7.900	12/04	Continuing	Continuing	Continuing
	PD	NAVSEA Wash DC	2.030	4.919	12/02-06/03	6.500	12/03	5.900	12/04	Continuing	Continuing	Continuing
	Various	Miscellaneous	27.281	7.044	12/02-06/03	5.095	12/03	5.400	12/04	Continuing	Continuing	Continuing
	WX	NSWC Carderock	1.559	0.300	12/02-06/03	0.360	12/03	0.300	12/04	Continuing	Continuing	Continuing
CVNX Product Development	PR,SS	NGNN, Newport News VA	11.805	21.300	01/03					0.000	Continuing	
	IPR	Anteon Corp, Arlington Va	1.816							0.000	1.816	
	PD	NAVAIR, Pax River Md	7.091							0.000	7.091	
	Various	Miscellaneous	1.472							0.000	1.472	
Subtotal Product Development			220.796	68.263		26.055		23.850		0.000	Continuing	
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000		0.000		

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Exhibit R-3 Cost Analysis (page 2)											DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT Ship Contract Design/LFT&E PE 0604567N				PROJECT NUMBER AND NAME CVN 77 Design 2301						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation													
Operational Test & Evaluation													
Live Fire Test & Evaluation	WX	NSWC Carderock	8.541								8.541		
	Various	Miscellaneous	0.743								0.743		
Tooling													
GFE													
Award Fees													
Subtotal T&E			9.284	0.000		0.000		0.000		0.000			
Remarks:													
Contractor Engineering Support	MAC												
Government Engineering Support													
Program Management Support	MAC					2.165		1.545					
Travel			0.075	0.100		0.100		0.100					
Labor (Research Personnel)													
SBIR Assessment													
Subtotal Management			0.075	0.100		2.265		1.645		0.000			
Remarks:													
Total Cost			230.155	68.363		28.320		25.495		0.000			
Remarks:													

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EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5												Ship Contract Design/LFT&E PE 0604567N												CVN 77 Design 2301											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Contract Milestones																																			
Construction Contract																																			
Post Shakedown Availability																																			
T&E Milestones																																			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 5	PROGRAM ELEMENT NAME AND NUMBER Ship Contract Design/LFT&E PE 0604567N				PROJECT NAME AND NUMBER CVN 21 LFT&E 4007		
COST (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	9.015	8.699	8.605	8.158	8.108	0.414	0.421
RDT&E Articles Qty							
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:							
<p>This project encompasses CVN 21 LFT&E efforts. Title 10, US Code, Section 2366, CVN 21 Operational Requirements Document (ORD) and the CVN 21 Test and Evaluation Master Plan , prescribe requirements for Live Fire Test and Evaluation (LFT&E). The purpose of LFT&E is to evaluate weapons and weapons systems in a realistic combat environment and to identify any mission threatening vulnerabilities early in the development process when there is time to take corrective action. The CVN 21 LFT&E Management Plan details the efforts, through testing and engineering analyses, to address potential design vulnerabilities.</p>							
<p>The high unit cost of CVN 21 and its shipboard systems, and the limited number of ships to be produced, preclude consideration of destructive testing of a full-up CVN 21 with threats of the type that might be expected in combat. Consequently, the Navy must rely on other means to determine that CVN 21 will be able to survive and carry out its missions in the face of the threats identified in the CVN 21 System Threat Assessment Report.</p>							
<p>The LFT&E strategy for the CVN 21 class accounts for the uncertainty in its design features. The strategy assumes that as the program progresses through the stages of ship design, prior to the award of the construction contract, descriptive detail of CVN 21 will increase and so will the ability to evaluate its survivability. An initial assessment of CVN 21's vulnerability was completed in FY03. A follow on assessment report will be completed using a higher level of ship details to support the ship construction contract award.</p>							

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B. Accomplishments/Planned Program			
	FY03	FY04	FY 05
Accomplishments/Effort/Subtotal Cost	9.015	8.699	8.605
RDT&E Articles Quantity			
<p>Conduct susceptibility assessment of the CVN 21 design. Resolve low confidence areas in analytical models for LFT&E concerns and continue to conduct LFT&E surrogate test program. This includes continuation of testing Damage Prevention Protection System, DAPS components, underwater protection features (innerbottom structure and Torpedo Side Protection System), dynamic test of hull girder models and conduct of recoverability tests, and initiate vulnerability modeling of the CVN 21 for Vulnerability Assessment Report #3. Initiate survivability modeling improvements. Prepare, construct and test full and scaled surrogate model targets as required by TEMP 1610 and the LFT&E Management Plan. Conduct analyses and tests on ex-SHADWELL to evaluate ordnance in CVN 21 representative locations, to review hangar bay fire spread, to determine desmoking and dewatering capabilities, and to assess fire main vulnerability. Conduct intensive vulnerability modeling of CVN 21 for Vulnerability Assessment Report #3. Continue survivability model improvements to support CVN 21 vulnerability assessment. In support of ORD vulnerability requirements testing, conduct representative CVN 21 fire and smoke spread tests, flight deck fire tests, and main drainage tests; assess designed passive damage control features and conduct recoverability modeling tests. Support Large Test Asset event.</p>			

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C. PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
Funding:			
Previous President's Budget: (FY 04 Pres Controls)	9.147	8.797	8.780
Current President's Budget: (FY05 Pres Controls)	9.015	8.699	8.605
Total Adjustments	-0.132	-0.098	-0.175
Summary of Adjustments			
Congressional Undistributed Reductions		-0.098	
SBIR reduction	-0.041		
Inflation Adjustments			-0.028
NWCF Adjustments			-0.142
Miscellaneous Adjustments	-0.091		-0.005
Subtotal	-0.132	-0.098	-0.175

Schedule:

Not Applicable

Technical:

Not Applicable

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<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 30%;"><u>Line Item No. & Name</u></th> <th style="text-align: center; width: 8%;"><u>FY 2003</u></th> <th style="text-align: center; width: 8%;"><u>FY 2004</u></th> <th style="text-align: center; width: 8%;"><u>FY 2005</u></th> <th style="text-align: center; width: 8%;"><u>FY 2006</u></th> <th style="text-align: center; width: 8%;"><u>FY 2007</u></th> <th style="text-align: center; width: 8%;"><u>FY 2008</u></th> <th style="text-align: center; width: 8%;"><u>FY 2009</u></th> <th style="text-align: center; width: 8%;"><u>To Complete</u></th> <th style="text-align: center; width: 8%;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>BLI 200100 Carrier Replacement Program</td> <td style="text-align: center;">484</td> <td style="text-align: center;">1,177</td> <td style="text-align: center;">626</td> <td style="text-align: center;">612</td> <td style="text-align: center;">2,970</td> <td style="text-align: center;">3,251</td> <td style="text-align: center;">1,569</td> <td style="text-align: center;">Continuing</td> <td style="text-align: center;">Continuing</td> </tr> <tr> <td>PE 0603512N Carrier System Development</td> <td style="text-align: center;">80</td> <td style="text-align: center;">155</td> <td style="text-align: center;">157</td> <td style="text-align: center;">132</td> <td style="text-align: center;">80</td> <td style="text-align: center;">288</td> <td style="text-align: center;">370</td> <td style="text-align: center;">Continuing</td> <td style="text-align: center;">Continuing</td> </tr> </tbody> </table> <p style="margin-top: 20px;">E. ACQUISITION STRATEGY:</p> <p>The CVN 21 will be the first ship of the new class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 21 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increase launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.</p> <p style="margin-top: 20px;">F. MAJOR PERFORMERS:</p> <p>NSWC Carderock Maryland</p>											<u>Line Item No. & Name</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>	BLI 200100 Carrier Replacement Program	484	1,177	626	612	2,970	3,251	1,569	Continuing	Continuing	PE 0603512N Carrier System Development	80	155	157	132	80	288	370	Continuing	Continuing
<u>Line Item No. & Name</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>																															
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Exhibit R-3 Cost Analysis										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT Ship Contract Design/LFT&E PE 0604567N			PROJECT NUMBER AND NAME CVN 21 LFT&E 4007						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation	WX	NSWC Carderock, MD	0.000	7.780	12/02-6/03	7.433	12/03	7.554	12/04	Continuing	Continuing	
	Various	Miscellaneous	0.000	1.235	12/02-6/03	1.266	12/03	1.051	12/04	Continuing	Continuing	
Subtotal T&E			0.000	9.015		8.699		8.605		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	9.015		8.699		8.605		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																											DATE:					
February 2004																																
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-05										Ship Contract Design/LFT&E PE 0604567N										CVN 21 LFT&E 4007												
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones											MS B ▲		PDR ▲					CDR ▲	DAB PR ▲													
Propulsion Plant																																
EMALS																																
	PDRR Vendor Down Select SDD System Manufacture																															
DBR Radar Suite										PDR ▲			CDR ▲																			
Advanced Arresting Gear						MS A ▲	SRR ▲			PDR ▲	MS B ▲				GDR ▲	CDR ▲																
Test & Evaluation Milestones																																
Development Test	DTA1 DT A2 DT B1 DT B2																															
Operational Test	OT A ◆												OT B1 ◆						OT B2 ◆			OT B3 ◆					OT B4 ◆					
Contract Milestones																																
IPPD Contract																																
CP Contract	Contract Award ▲																															
Construction Contract	Contract Award ▲																															
Full Funding (SCN)	X																															

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

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 14 of 53)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 5	PROGRAM ELEMENT NAME AND NUMBER Ship Contract Design/LFT&E PE 0604567N				PROJECT NAME AND NUMBER CVN 21 Total Ship Integration 4008		
COST (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	66.314	23.430	37.905	35.100	21.970	6.522	0.000
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project encompasses CVN 21 total ship integration efforts. The traditional distinct phasing of the design process for aircraft carriers has been replaced with a continuous concurrent engineering regime incorporating the methodology, measurement, and management elements of the Navy's Integrated Product and Process Development (IPPD) process, extending it beyond contract award. The CVN 21 total ship integration effort will be managed within a technology change management process at contract award to allow further system development. This will ensure that the latest technologies are properly incorporated during the 8 year construction period for an aircraft carrier, without costly contract changes. The IPPD process serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder, aviation programs, and suppliers. Government/Industry Integrated Product Teams (IPTs) utilize the IPPD process within an Integrated Data Environment (IDE) to design and develop ship construction Contract Data Packages (CDPs). The Future Carrier CVN 21 design approach is part of an acquisition strategy that is based on incorporating best available commercial practices and a phased technical definition.

CVN 21 Total Ship Integration, the integration of major systems into ship design, includes redesign and rearrangement of ship components; redesign of hull, mechanical and electrical (HM&E) and auxiliary systems (air-conditioning and ventilation, power distribution and generation, airborne noise management, reduction of steam, environmental safety and health (ESH) and interface control; redesign of water production and tankage; electric loads analysis; redesign of power distribution; analysis and redesign of structure; analysis, tracking and management of changes in weight distribution and stability; and analysis and redesign of survivability systems. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 21 procurement.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E PE 0604567N	PROJECT NUMBER AND NAME CVN 21 Total Ship Integration 4008												
B. Accomplishments/Planned Program <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><tr><td style="width: 30%;"></td><td style="width: 20%; text-align: center;">FY 03</td><td style="width: 20%; text-align: center;">FY 04</td><td style="width: 30%; text-align: center;">FY 05</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">66.314</td><td style="text-align: center;">23.430</td><td style="text-align: center;">37.905</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 10px; min-height: 150px;"><p>Resolve CVN 21 design issues and update the contract data package, including design drawings and specifications in areas where near-term LLTM advanced purchase and early fabrication work may be impacted. The update accommodates changes to the ship, its systems and equipment necessitated by equipment obsolescence, operational need, and incorporation of newer systems/technology. Accomplish Total Ship Integration through the IPPD process to incorporate the design changes required to the legacy baseline design for definition at the total system level.</p></div>				FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	66.314	23.430	37.905	RDT&E Articles Quantity			
	FY 03	FY 04	FY 05											
Accomplishments/Effort/Subtotal Cost	66.314	23.430	37.905											
RDT&E Articles Quantity														

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E PE 0604567N	PROJECT NUMBER AND NAME CVN 21 Total Ship Integration 4008	
C. PROGRAM CHANGE SUMMARY:			
Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	68.123	23.730	38.213
Current President's Budget: (FY 05 Pres Controls)	66.314	23.430	37.905
Total Adjustments	-1.809	-0.300	-0.308
Summary of Adjustments			
Congressional undistributed reductions		-0.300	
NWCF Rate Adjustments			
Inflation Adjustments			-0.123
SBIR reductions	-1.037		-0.162
Miscellaneous Adjustments	-0.772		-0.023
Subtotal	-1.809	-0.300	-0.308
Schedule:			
Not Applicable			
Technical:			
Not Applicable			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004																																
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<u>Line Item No. & Name</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>																														
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT Ship Contract Design/LFT&E PE 0604567N			PROJECT NUMBER AND NAME CVN 21 Total Ship Integration 4008						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Total Ship Integration	WX	NSWC Carderock	0.000	10.480	12/02-6/03	1.214	12/03	1.650	12/04	Continuing	Continuing	
	SS, CPAF	NGNN, Newport News Va	0.000	33.043	12/02-6/03	5.900	12/03	14.100	12/04	Continuing	Continuing	
	IPR	GSA	0.000	5.550	12/02-6/03					Continuing	Continuing	
	WX	NAWC, Lakehurst	0.000	3.855	12/02-6/03	2.853	12/03	2.921	12/04	Continuing	Continuing	
	WX	NSWC, Port Hueneme	0.000	4.000	05/03					Continuing	Continuing	
	PR	NAVSEA MAC				7.829	12/03	8.445	12/04	Continuing	Continuing	
	Various	Miscellaneous	0.000	9.236	12/02-6/03	5.484	12/03	10.639	12/04	Continuing	Continuing	
Subtotal Product Development			0.000	66.164		23.280		37.755			Continuing	
Remarks: For FY02 and prior this effort was accomplished under PE 0603512N, projects 42208 and 42693												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		0.000		0.000				
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT Ship Contract Design/LFT&E PE 0604567N				PROJECT NUMBER AND NAME CVN 21 Total Ship Integration 4008					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation													
Operational Test & Evaluation													
Live Fire Test & Evaluation													
Test Assets													
Tooling													
GFE													
Award Fees													
Subtotal T&E				0.000		0.000							
Remarks:													
Contractor Engineering Support													
Government Engineering Support													
Program Management Support													
Travel				0.150		0.150		0.150					
Labor (Research Personnel)													
SBIR Assessment													
Subtotal Management				0.150		0.150		0.150					
Remarks:													
Total Cost			0.000	66.314		23.430		37.905					
Remarks:													

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[illegible]

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

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 21 of 53)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N				PROJECT NUMBER AND NAME 1803 Ship Contract Design			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		14.928	1.768	10.249	18.792	18.813	12.230	7.332
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Mission Description and Budget Item Justification: This project supports development of all technical, programmatic and contractual documentation required for the acquisition of various ships in the Navy's Shipbuilding Program. The major effort is the engineering development of the technical and contractual definition of the ship's design (e.g. ship specifications and drawings), with sufficient details for the prospective shipbuilder to make a sound estimate of construction cost and schedule. It also serves as the technical definition from which the shipbuilder develops the shipbuilding detailed design and testing package required to build and test the ship. This funding also provides for Navy retention of unique ship design knowledge. It provides the Navy with a digital, ship design knowledge base, including lessons learned, required to ensure that a proper development, analysis and evaluation can be conducted of any current or future planned Navy ship. This data base will serve as the basis to evaluate and qualify any future ship design. Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which will serve for the future acquisition of Navy Ship and supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004													
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N	PROJECT NUMBER AND NAME 1803 Ship Contract Design													
B. Accomplishments/Planned Program															
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="padding: 2px;">Cruiser Modernizaation Program</td><td style="padding: 2px; text-align: center;">FY 03</td><td style="padding: 2px; text-align: center;">FY 04</td><td style="padding: 2px; text-align: center;">FY 05</td></tr><tr><td style="padding: 2px;">Accomplishments/Effort/Subtotal Cost</td><td style="padding: 2px; text-align: center;">14.928</td><td style="padding: 2px; text-align: center;">1.768</td><td style="padding: 2px; text-align: center;">8.569</td></tr><tr><td style="padding: 2px;">RDT&E Articles Quantity</td><td style="padding: 2px;"></td><td style="padding: 2px;"></td><td style="padding: 2px;"></td></tr></table>				Cruiser Modernizaation Program	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	14.928	1.768	8.569	RDT&E Articles Quantity			
Cruiser Modernizaation Program	FY 03	FY 04	FY 05												
Accomplishments/Effort/Subtotal Cost	14.928	1.768	8.569												
RDT&E Articles Quantity															
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">Continued CG Planning Yard modernization design and engineering efforts; continued government efforts for design products, data base development, specifications development, and program planning; and continued system integration efforts for shipboard systems leading to Baseline 4 lead ship procurement award in FY04. Initiate CG Planning Yard modernization design and engineering efforts; government efforts for design products, data base development, specifications development, and program planning; and system integration efforts for shipboard systems leading to Baseline 2 lead ship procurement award.</div>															
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="padding: 2px;">Heavy Lift LCAC Program</td><td style="padding: 2px; text-align: center;">FY 03</td><td style="padding: 2px; text-align: center;">FY 04</td><td style="padding: 2px; text-align: center;">FY 05</td></tr><tr><td style="padding: 2px;">Accomplishments/Effort/Subtotal Cost</td><td style="padding: 2px; text-align: center;">0.000</td><td style="padding: 2px; text-align: center;">0.000</td><td style="padding: 2px; text-align: center;">1.680</td></tr><tr><td style="padding: 2px;">RDT&E Articles Quantity</td><td style="padding: 2px;"></td><td style="padding: 2px;"></td><td style="padding: 2px;"></td></tr></table>				Heavy Lift LCAC Program	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.680	RDT&E Articles Quantity			
Heavy Lift LCAC Program	FY 03	FY 04	FY 05												
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.680												
RDT&E Articles Quantity															
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">Resolution of technical design issues to support the development of a Heavy Lift LCAC variant resulting in a 50% increase in craft length over the standard LCAC to a LOA of 112 feet. Development of propellers, shrouds, gearboxes and lift fans to support the additional craft propulsion requirements will be required. Commonality with LCAC components will be maximized consistent with maintaining acceptable design margins given the additional requirements.</div>															

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N	PROJECT NUMBER AND NAME 1803 Ship Contract Design

C. PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
Previous President's Budget:	15.520	7.549	18.316
Current President's Budget:	14.928	1.768	10.249
Total Adjustments	-0.592	-5.781	-8.067
Summary of Adjustments			
Congressional undistributed reductions		-0.031	-0.004
SBIR reductions	-0.831		
Inflation Adjustments			-0.059
Miscellaneous Adjustments	0.239		-0.006
Deferred Start of Heavy Lift LCAC Program		-5.750	-8.000
NSWC Rate Adjustments			0.002
Subtotal	-0.592	-5.781	-8.067

Schedule:

CG Modernization procurement contract awards reflect the Baseline 4 lead ship funded for long lead equipment procurement in FY04 and conversion availability in FY06. Baseline 2 and Baseline 3 lead ships are funded for procurement in the outyears. Design efforts funded in RDT&E,N leading to procurement contract awards have been scheduled accordingly. JCC(X) program was terminated. Heavy Lift LCAC development planned for initiation in FY05.

Technical:

Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N			PROJECT NUMBER AND NAME 1803 Ship Contract Design				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2002</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>
SCN 202000 CG Modernization	65									65
OPN 096000 CG Modernization			79	114	247	223	282	408	1,430	2,783
WPN 422300 CG Modernization			15	9	32	42	34	53	356	541
O&MN 1B5B CG Modernization			8	43	99	146	213	217	1,618	2,344

E. ACQUISITION STRATEGY:

N/A

F. MAJOR PERFORMERS:

N/A

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design/LFT&E 0604567N			1803 Ship Contract Design						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
CG Mod Class Design/Integration	SS/CPAF	Northrop Grumman, Pascago	CONT.	7.253	10/02	0.768	02/04	5.759	10/04	CONT.	CONT.	CONT.
CG Mod Electronic Systems Eng	C/CPAF	LMGES, Moorestown, NJ	CONT.	1.600	10/02	1.000	02/04	2.810	10/04	CONT.	CONT.	CONT.
CG Mod Electronic Systems Eng	C/CPAF	NAWCAD, Pax River, MD	CONT.	0.335	10/02					CONT.	CONT.	CONT.
CG Mod Ship Integration Eng	C/CPFF	JJMA/CSC/BAE, Arl, VA	CONT.	2.794	10/02					CONT.	CONT.	CONT.
CG Mod Ship Integration Eng	WX	NSWC/DD, Dahlgren, VA	CONT.	1.000	10/02					CONT.	CONT.	CONT.
CG Mod Ship Integration Eng	C/CPFF	NSWC/SSES	CONT.	0.620	10/02					CONT.	CONT.	CONT.
HLCAC Propulsion System Design	C/CPFF	TBD						1.000	03/05	CONT.	CONT.	CONT.
Subtotal Product Development			CONT.	13.602		1.768		9.569		0.000	24.939	
Remarks:												
CG Mod Training System Developme	MISC	ATRC, LMGES, Moorestown	CONT.	0.000	10/02					CONT.	CONT.	CONT.
CG Mod Integrated Logistics Support	MISC	NSWC/PHD, PRC	CONT.	0.968	10/02					CONT.	CONT.	CONT.
HLCAC Government Engineering Sp	MISC	NSWC DD: Panama City						0.653	12/04	CONT.	CONT.	CONT.
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			CONT.	0.968		0.000		0.653		0.000	1.621	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5			PROGRAM ELEMENT Ship Contract Design LFT&E 0604567N				PROJECT NUMBER AND NAME 1803 Ship Contract Design					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
CG Mod Developmental Test & Eval	C/CPFF	Grayhawk, Comtek, DTI, Log	CONT.	0.358	10/02					CONT.	CONT.	CONT.
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			CONT.	0.358		0.000		0.000		0.000	0.358	
Remarks:												
HLCACTravel								0.027	12/04	CONT.	CONT.	CONT.
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.027		0.000	0.027	
Remarks:												
Total Cost			CONT.	14.928		1.768		10.249		0.000	26.945	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5												Ship Contract Design/LFT&E 0604567N												1803 Ship Contract Design											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Acquisition Milestones																																			
CG Baseline 4 Contract Design	<div></div>																																		
CG Baseline 2 Contract Design	<div></div>																																		
CG Baseline 3 Contract Design	<div></div>																																		
Heavy Lift LCAC Design Development	<div></div>																																		
Test & Evaluation Milestones																																			
CG Modernization: Susceptibility & Vulnerability Analyses	<div></div>																																		
Recoverability Analyses	<div></div>																																		
Total Ship Survivability Trial	<div></div>																																		
Vulnerability Analysis Report	<div></div>																																		
Production Milestones																																			
CG Modernization: Procurement Awards	<div></div>																																		
Deliveries	<div></div>																																		

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R-1 SHOPPING LIST - Item No. 116

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 29 of 53)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N				PROJECT NUMBER AND NAME 2198 LFT&E			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		0.000	4.345	4.474	2.722	1.545	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides for the development and performance of Live Fire Test and Evaluation analyses, tests, trials, and other engineering information required to fulfill statutory and programmatic requirements for combat effective naval warfare for the Cruiser Modernization Program.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N	PROJECT NUMBER AND NAME 2198 LFT&E	
B. Accomplishments/Planned Program			
Cruiser Modernization Program	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	4.345	4.474
RDT&E Articles Quantity			
<div>Perform suseptibility, vulnerability, and recoverability analyses for the Cruiser Modernization Program. Continue planning and preparations for the Total Ship Survivability Trial planned for FY07.</div>			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / E BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N	PROJECT NUMBER AND NAME 2198 LFT&E

C. PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
Previous President's Budget:	0.000	4.394	4.492
Current President's Budget:	0.000	4.345	4.474
Total Adjustments	0.000	-0.049	-0.018
Summary of Adjustments			
Congressional undistributed reductions		-0.049	
SBIR reduction			
Inflation Adjustments			-0.015
Miscellaneous Adjustments			-0.003
Subtotal	0.000	-0.049	-0.018

Schedule:

CG Modernization LFT&E efforts are funded in RDT&E,N and have been scheduled consistent with the lead ship Total Ship Survivability Trial and Vulnerability Analysis Report in FY07.

Technical:

Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design/LFT&E 0604567N			PROJECT NUMBER AND NAME 2198 LFT&E				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2002</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>
SCN 202000 CG Modernization	65									65
OPN 096000 CG Modernization			79	114	247	223	282	408	1,430	2,783
WPN 422300 CG Modernization			15	9	32	42	34	53	356	541
O&MN 1B5B CG Modernization			8	43	99	146	213	217	1,618	2,344

E. ACQUISITION STRATEGY:

TBD

F. MAJOR PERFORMERS:

TBD

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design/LFT&E 0604567N			2198 LFT&E						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5			PROGRAM ELEMENT Ship Contract Design/LFT&E 0604567N				PROJECT NUMBER AND NAME 2198 LFT&E					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
CG Modernization LFT&E	MISC	NRL/Greyhawk				4.345	10/03	4.474	10/04	4.267	13.086	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		4.345		4.474		4.267	13.086	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	0.000		4.345		4.474		4.267	13.086	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5												Ship Contract Design/LFT&E 0604567N												2198 LFT&E											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Acquisition Milestones																																			
Test & Evaluation Milestones																																			
Susceptibility & Vulnerability Analyses																																			
Recoverability Analyses																																			
Total Ship Survivability Trial																																			
Vulnerability Analysis Report																																			
Production Milestones																																			
CG Modernization																																			
Procurement Awards																																			
Deliveries																																			

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CLASSIFICATION:

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 37 of 53)

EXHIBIT R-2a, RDTE Project Justification							DATE:	
							February 2004	
APPROPRIATION/BUDGET ACTIVITY RDTE,N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N				PROJECT NUMBER AND NAME 2465/9235/9236/LHA(R)			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total Project Cost		38.077	64.137	44.180	40.232	45.991	32.097	15.208
S2465/LHA Replacement		0.000	64.137	44.180	40.232	45.991	32.097	15.208
S9235/LHA(R) Transfer from LHD 1 AP		9.521	0.000	0.000	0.000	0.000	0.000	0.000
S9236/LHA(R) Design		28.556	0.000	0.000	0.000	0.000	0.000	0.000
Defense Emergency Response Funds (DEAF) Funds: Not applicable.								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the LHA Replacement (R) Program is a spiral development ship construction program designed to: provide a functional replacement for the LHA 1 Class ships which will reach the end of their extended service lives in consecutive years beginning in FY 11; ensure that the Amphibious Fleet remains capable of Expeditionary Strike Warfare in support of the Navy and Marine Corps Global CONOPS well into the 21st. Century; and provide for an affordable and sustainable amphibious ship development program. LHA(R) ships will provide forward presence and power projection as an integral part of Joint, interagency, and multi-national maritime expeditionary forces. The LHA 1 class is a multi purpose amphibious assault ship delivered to the Navy in the 1970's. The design merged the flight deck of an LPH and the vehicle and well deck of an LPD. The design allowed the use of helicopters and landing craft to conduct amphibious assaults. As technology evolved, new amphibious assault systems have been introduced into service (e.g. LCAC) which required the modification of the LHA design, resulting in the LHD 1 Class. The LHA(R) 1 will be a modified LHD 8 Variant (Plug Plus with increased length and beam) and a repeat of the warfare system of LHD 8, with a new MFR/VSF based warfare system targeted for LHA(R) 2. New systems, such as the MV-22, AAV, and the JSF are currently in development and, in order to fully integrate these systems, a ship with greater flight deck capability and improved stability is required. Future programs such as the CH-53E and AH-1Z replacement aircraft will further stress current ship designs. To facilitate new USMC operational doctrine, such as Operational Maneuver From the Sea, Ship to Objective Maneuver, and Seabased logistics, operational requirements will be modified for these improved capabilities. FY 2003 ACCOMPLISHMENTS: (U) (\$38.077M) Transitioned from the early design efforts into the efforts leading to shipbuilding contract award of LHA(R) 1. Commenced resolution of system engineering, ship/system integration, design issues, and follow-on test and evaluation requirements definition. FY 2004 PLAN: (U) (\$64.137M) Continue resolution of engineering/design issues and initiate the contract data package, including design drawings and ship specifications. Commence Total Ship integration through the IPPD process to incorporate design improvements. Continue warfare system design refinement. Commence improvements targeted at reducing operating and life cycle support costs. Continue development of requirements to support DT/OT. Resolve low confidence areas in analytical models for LFT&E concerns and continue LFT&E surrogate test program. FY 2005 PLAN: (U) (\$36.000M) LHA(R) 1: Continue the integration of design improvements into the Total Ship Design. Continue developing functional and system level design and transitioning these efforts into the total ship engineering package that forms the basis for the solicitation package for the detail design and construction of the ship. (U) (\$8.180M) LHA(R) 2: Commence studies to support the design requirements to meet the operational requirements for LHA(R) 2. Commence identifying impacts and design issues for (1) integration of the MFR/VSF based warfare system targeted for LHA(R) 2, (2) ship system and structure changes required for full integration of new fielded systems such as MV-22 and AAV and other replacement/new craft to be developed such as JSF and Heavy Lift LCAC, and (3) other changes required for the ship to meet operational requirements.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N	PROJECT NUMBER AND NAME 2465 / 9235 / 9236 LHA(R)					
B. Accomplishments/Planned Program							
LHA(R) 1	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	38.077	64.137	36.000	32.000	0.000	0.000	0.000
RDT&E Articles Quantity							
LHA(R) 2	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	0.000	8.180	8.232	45.991	32.097	15.208
RDT&E Articles Quantity							
Initiate design efforts leading to shipbuilding contract award for LHA(R) 2. Resolve design issues and initiate the contract data package, including design drawings and specifications. Continue Total Ship Integration through the IPPD process to incorporate design improvements. Initiate design refinement of MFR/VSR based Warfare System. Continue improvements targeted at reducing operating and support costs. Continue development of system decision data packages. Continue development of requirements necessary to support DT/OT. Continue susceptibility assessments. Resolve low confidence areas in analytical models for LFT&E concerns and continue LFT&E surrogate test program.							
	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Quantity							

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Technical:

Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N			PROJECT NUMBER AND NAME 2465 / 9235 / 9236 LHA(R)			

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>
PE 0603563N Ship Concept Advanced Design	25	21	4	2	22	2	2		
PE 0603564N Ship Prelim. Design & Feas. Studies	2	0	0	0	0	100	75		
SCN 304100 LHA Replacement	0	0	0	0	0	3,104	0.000		

E. ACQUISITION STRATEGY:

The acquisition strategy for the contract design and for the detail design and construction of LHA(R)1 is continuing to be addressed within the Navy. One of the strategies being addressed is sole source procurement to Northrop Grumman Ship Systems, who has constructed all ships of the LHA and LHD classes. LHA(R) 1 configuration is Analysis of Alternatives Concept LHD Modified Repeat (Plug Plus), without radar cross section reduction, and with repeat of LHD 8 warfare system with fact of life changes. Resources for comprehensive manpower optimization are not funded within current program requirements as reflected in this project.

F. MAJOR PERFORMERS:

TBD

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design / LFT&E 0604567N			2465 / 9235 / 9236 LHA(R)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date			Target Value of Contract
Ship Design	TBD	TBD	0.000	29.339	03/03	43.151	10/03	21.545	10/04			CONT.
Systems Engineering	TBD	TBD	0.000	8.738	03/03	20.986	10/03	22.635	10/04			CONT.
Subtotal Product Development			0.000	38.077		64.137		44.180				
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) (continued)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5			PROGRAM ELEMENT Ship Contract Design / LFT&E 0604567N			PROJECT NUMBER AND NAME 2465/9235/9236 LHA(R)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date			Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		
Remarks:												
Contractor Engineering Support											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	0.000	
Remarks:												
Total Cost			0.000	38.077		64.137		44.180			146.394	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5												Ship Contract Design / LFT&E 0604567N												2465 / 9235 / 9236 LHA(R)											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Acquisition Milestones																																			
Overarching Integrated Product Team Review												△																							
Continue Transitioning Design Efforts for LHA(R) 1									△																										
Begin Design of LHA(R) 2												△																							
Milestone B																						△													
Test & Evaluation Milestones																																			
EOA													△			△																			
Production Milestones																																			
LHA(R) 1 Shipbuilding Contract Award																							△												
Deliveries																																			

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 45 of 53)

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5					R-1 ITEM NOMENCLATURE Ship Contract Design/LFT&E 0604567N			
COST (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Total PE Cost								
9389 LHD 8 Performance Based Logistics (PBL)	0.000	1.384	0.000	0.000	0.000	0.000	0.000	
Defense Emergency Response Funds (DERF) Funds: Not applicable.								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Establish and operate a PBL Working Group to develop and implement the PBL strategy and plan for LHD 8. LHD 8 Propulsion, Power Generation, and Power Management systems are comprised primarily of new development items and Commerical Off The Shelf (COTS) items that are not presently supported in the Navy's existing logistics support system infrastructure. The integrated logistics support requirements for these systems including material, technical documentation, training, maintenance, system engineering and life cycle support processes and deliverables that must be in place at the time of the LHD 8 delivery to ensure adequate post-delivery and life cycle support of the vessel must be adequately defined.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT NUMBER AND NAME 0604567N Ship Contract Design / LFT&E	PROJECT NUMBER AND NAME 9389/LHD 8 Performance Based Logistics (PBL)	

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	1.384	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Quantity							

Establish and operate a PBL Working Group to develop and implement the PBL strategy and plan for LHD 8. LHD 8 Propulsion, Power Generation, and Power Management systems are comprised primarily of new development items and Commercial Off The Shelf (COTS) items that are not presently supported in the Navy's existing logistics support system infrastructure. The integrated logistics support requirements for these systems including material, technical documentation, training, maintenance, system engineering and life cycle support processes and deliverables that must be in place at the time of the LHD 8 delivery to ensure adequate post-delivery and life cycle support of the vessel must be adequately defined.

	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Quantity							

	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Quantity							

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604567N Ship Contract Design / LFT&E	PROJECT NUMBER AND NAME 9389/LHD 8 Performance Based Logistics (PBL)

C. PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
Funding:			
Previous President's Budget: (FY 04)	0.000	0.000	0.000
Current President's Budget: (FY05)	0.000	1.384	0.000
Total Adjustments	0.000	1.384	0.000
Summary of Adjustments			
Congressional Add		1.384	
Subtotal	0.000	1.384	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604567N Ship Contract Design / LFT&E			PROJECT NUMBER AND NAME 9389/LHD 8 Performance Based Logistics (PBL)			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
SCN 303500 LHD 8 *	238.1	352.2	236.0	121.9	0	0	0	0	948.158

*LHD 8 is an incrementally funded program with funding in FY99-06.

E. ACQUISITION STRATEGY:

The acquisition strategy for this effort includes participation from both Government activities and industry (Northrop Grumman Ship Systems (NGSS)).

F. MAJOR PERFORMERS:

Northrop Grumman Ship Systems (NGSS)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604567N Ship Contract Design / LFT&E			9389/LHD 8 Performance Based Logistics (PBL)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date			
Subtotal Product Development												
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support	Various	NGSS/Gov't Activities				1.384	Various				0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		1.384		0.000		0.000	1.384	
Remarks: *Modification to existing shipbuilding contract to NGSS												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) (continued)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5			PROGRAM ELEMENT 0604567N Ship Contract Design / LFT&E			PROJECT NUMBER AND NAME 9389/LHD 8 Performance Based Logistics (PBL)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date			
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000				
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	0.000	
Remarks:												
Total Cost			0.000	0.000		1.384		0.000		0.000	0.000	1.246
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																							Date:				February 2004			
APPROPRIATION/BUDGET ACTIVITY									PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME									
RDT&E, N / BA-5									0604567N Ship Contract Design / LFT&E												9389/LHD 8 Performance Based Logistics (PBL)									
Fiscal Year	2003				2004				2005				2006				2007				2008				2009					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Acquisition Milestones																														
Test & Evaluation Milestones																														
Production Milestones																														
Establish Working Group						△	△																							
Initiate Plan/Req Determination						△								△																
Final Report														△																
Deliveries																														

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 52 of 53)

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DATE: **February 2004**

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