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EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2003	
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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	122.405	181.098	138.017	140.018	115.004	91.371	50.352	27.038
42301 / CVN 77 Design	82.066	49.189	28.674	25.648	5.919	0.800	0.000	0.000
44007 / CVN 21 LFT&E	0.000	9.147	8.797	8.780	8.388	8.373	0.686	1.065
44008 / CVN 21 Total Ship Integration	0.000	68.123	23.730	38.213	35.454	22.329	6.871	0.000
S1803 / Ship Contract Design	39.374	15.520	7.549	18.316	21.855	11.844	10.246	10.332
S2198 / Life Fire Test and Evaluation	0.000	0.000	4.394	4.492	2.729	1.548	0.000	0.000
S2465 / LHA(R)	0.000	0.000	64.873	44.569	40.659	46.477	32.549	15.641
S9073 / Titanium Water Tight Door	0.965	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S9235 / LHA R Design	0.000	9.780	0.000	0.000	0.000	0.000	0.000	0.000
S9236 / LHA R Transfer from LHD	0.000	29.339	0.000	0.000	0.000	0.000	0.000	0.000
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>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.</p> <p>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.</p> <p>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.</p>								

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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 42301			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	82.066	49.189	28.674	25.648	5.919	0.800	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project encompasses CVN 77 design. For FY02 and prior, it also encompassed CVNX, now called CVN 21, design and LFT&E. (CVN-21 LFT&E is now budgeted under a separate project, CVN-21 Design, 44007.) 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.

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B. Accomplishments/Planned Program				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	70.835	0.000	0.000	0.000
RDT&E Articles Quantity				
<p>Future Carrier design – Commence resolution of future carrier design issues and update contract data package, including sytem descriptions, system diagrams, design drawings and specifications in areas where near- term LLTM advanced purchase and early fabrication work may be impacted. Accommodate changes to future carriers, systems, and equipment necessitated by equipment obsolescence, operational need, and the need to incorporate newer systems/technology to meet ORD requirements and reduce Total Ownerships Cost (TOC). Use the IPPD process to incorporate the design changes required to the legacy baseline design for definition at the total system level. Complete conceptual baseline design including a New Propulsion Plant, Electromagnetic Aircraft Launching System (EMALS), Zonal Electrical Distribution System, Electrical Auxiliaries, Reverse Omosis Distillate Units, Integrated Warfare Systems, and overall Total Ship Integration Efforts to close System Requirement Review Gaps, Conduct In-Process Design Review, and continue development of engineering design package documentation.</p>				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.947	0.000	0.000	0.000
RDT&E Articles Quantity				
<p>Propulsion and Electric Power Generation – Complete development of consolidated throttle control and remote EPCP. Complete testing of purification system. Complete development of valve control system.</p>				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	9.284	0.000	0.000	0.000
RDT&E Articles Quantity				
<p>CVNX 1 (CVN 21 FY03 and Out) LFT&E - Conduct, through completion, a vulnerability assessment of the CVNX design to address LFT&E concerns identified in the TEMP. Conduct susceptibility assessment of the CVNX design. Resolve low confidence areas in analytical models for LFT&E concerns, and conduct LFT&E surrogate test program. This includes testing of 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.</p>				

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B. Accomplishments/Planned Program				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	49.189	28.674	25.648
RDT&E Articles Quantity				
<div>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). Develop warfare system improvement Engineering Change Proposals (ECPs), including flexible island design modifications. Sustain efforts to insure warfare system interoperability and design consistency in accordance with the Navy's life cycle support strategy.</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%;"></th> <th style="text-align: right; width: 15%;">FY 2002</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>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget: (FY 03 Pres Controls)</td> <td style="text-align: right;">97.644</td> <td style="text-align: right;">132.033</td> <td style="text-align: right;">69.550</td> <td style="text-align: right;">48.927</td> </tr> <tr> <td>Current President's Budget: (FY 04 Pres Controls)</td> <td style="text-align: right;">82.066</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>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-15.578</td> <td style="text-align: right; border-top: 1px solid black;">-82.844</td> <td style="text-align: right; border-top: 1px solid black;">-40.876</td> <td style="text-align: right; border-top: 1px solid black;">-23.279</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional program reductions</td> <td style="text-align: right;">0.000</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional undistributed reductions</td> <td style="text-align: right;">0.000</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional rescissions</td> <td style="text-align: right;">0.000</td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td style="text-align: right;">-1.843</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Economic Assumptions/Miscellaneous Reductions</td> <td style="text-align: right;">-1.872</td> <td style="text-align: right;">-1.878</td> <td style="text-align: right;">-1.506</td> <td style="text-align: right;">-1.563</td> </tr> <tr> <td> Programmatic adjustments</td> <td style="text-align: right;">-11.863</td> <td style="text-align: right;">-80.966</td> <td style="text-align: right;">-39.370</td> <td style="text-align: right;">-21.716</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-15.578</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-82.844</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-40.876</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-23.279</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p>Not Applicable</p> <p>Technical:</p> <p>Not Applicable.</p>						FY 2002	FY 2003	FY 2004	FY 2005	Funding:					Previous President's Budget: (FY 03 Pres Controls)	97.644	132.033	69.550	48.927	Current President's Budget: (FY 04 Pres Controls)	82.066	49.189	28.674	25.648	Total Adjustments	-15.578	-82.844	-40.876	-23.279	Summary of Adjustments					Congressional program reductions	0.000				Congressional undistributed reductions	0.000				Congressional rescissions	0.000				SBIR/STTR Transfer	-1.843				Economic Assumptions/Miscellaneous Reductions	-1.872	-1.878	-1.506	-1.563	Programmatic adjustments	-11.863	-80.966	-39.370	-21.716	Subtotal	-15.578	-82.844	-40.876	-23.279
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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 42301				
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>
BLI 200100 Carrier Replacement Program	135.3	395.5	1186.6	626.0	611.8	2983.9	3811.8	3074.4	Continuing	Continuing
PE 0603512N Carrier System Development	149.6	101.8	141.8	160.1	141.6	92.2	290.2	370.8	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 2003		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design/LFT&E PE 0604567N			CVN 77 Design 42301						
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	24.000	12/02	5.000	12/03	5.000	12/04	Continuing	Continuing	
	SS, CPFF	Bettis Atomic Pwr Labs, Pa	42.691							0.000	42.691	42.691
	WR	NAWCS Lakehurst NJ, Pax Md	5.278	0.360	12/02	0.450	12/03	0.750	12/04	Continuing	Continuing	Continuing
	WR	NSWC Dahlgren	15.018	7.402	12/02	2.500	12/03	1.000	12/04	Continuing	Continuing	Continuing
	PD/WR	SPAWAR, San Diego Ca	3.875	6.693	12/02	7.500	12/03	6.000	12/04	Continuing	Continuing	Continuing
	PD	NAVSEA Wash DC	2.030	4.919	12/02	7.100	12/03	5.000	12/04	Continuing	Continuing	Continuing
	Various	Miscellaneous	27.281	5.415	12/02	5.824	12/03	7.498	12/04	Continuing	Continuing	Continuing
	WR	NSWC Carderock	1.559	0.300	12/02	0.200	12/03	0.300	12/04	Continuing	Continuing	Continuing
CVNX Product Development	PR,SS	NGNN, Newport News VA	11.805							0.000	Continuing	
	MIPR	Anteon Corp, Arlington Va	1.816							0.000	Continuing	
	PD	NAVAIR, Pax River Md	7.091							0.000	Continuing	
	Various	Miscellaneous	1.472							0.000	Continuing	
Subtotal Product Development			220.796	49.089		28.574		25.548		0.000	Continuing	
Remarks: CVN 21 Product Development efforts for FY03 and subsequent years are covered under Project 44008												
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 2003		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design/LFT&E PE 0604567N				CVN 77 Design 42301						
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	WR	NSWC Carderock	8.541								Continuing		
	Various	Miscellaneous	0.743								Continuing		
Tooling													
GFE													
Award Fees													
Subtotal T&E			9.284	0.000		0.000		0.000		0.000			
Remarks:													
Contractor Engineering Support													
Government Engineering Support													
Program Management Support													
Travel			0.075	0.100		0.100		0.100					
Labor (Research Personnel)													
SBIR Assessment													
Subtotal Management			0.075	0.100		0.100				0.000			
Remarks:													
Total Cost			230.155	49.189		28.674		25.648		0.000			
Remarks:													

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COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	0.000	9.147	8.797	8.780	8.388	8.373	0.686	1.065
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

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 potential, mission threatening vulnerabilities early in the development process, or while still in low-rate production, when there is time to take corrective action.

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.

The LFT&E strategy adopted 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, descriptive detail of CVN 21 will increase and, hence, so will the ability to evaluate its survivability. The strategy also accepts that the greatest influence on ship design is possible in its early stages. Hence, the strategy is constructed to begin with a consideration of general survivability measures, at a low level of detail, and progress to a specific assessment of survivability at a high level of detail.

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B. Accomplishments/Planned Program				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	9.147	8.797	8.780
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 at 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.</p>				

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003		
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 LFT&E 44007				
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>
BLI 200100 Carrier Replacement Program	135.3	395.5	1186.6	626.0	611.8	2983.9	3811.8	3074.4	Continuing	Continuing
PE 0603512N Carrier System Development	149.6	101.8	141.8	160.1	141.6	92.2	290.2	370.8	Continuing	Continuing
 E. ACQUISITION STRATEGY:										
<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>										
 F. MAJOR PERFORMERS:										
NSWC Caderock Maryland										

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Exhibit R-3 Cost Analysis										DATE: February 2003		
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 44007						
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	WR	NSWC Carderock, MD	0.000	7.600	12/02	7.980	12/03	8.379	12/04	Continuing	Continuing	
	Various	Miscellaneous	0.000	1.547	12/02	0.817	12/03	0.401	12/04	Continuing	Continuing	
Subtotal T&E			0.000	9.147		8.797		8.780		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		
Remarks:												
Total Cost			0.000	9.147		8.797		8.780		0.000		
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
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 44008			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	0.000	68.123	23.730	38.213	35.454	22.329	6.871	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.

CVN 21 Total Ship Integration FY02 and prior efforts were funded in PE0603512N, Projects 42208 and 42693, and PE0604567N Project 42301.

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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 44008		
B. Accomplishments/Planned Program				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	68.123	23.730	38.213
RDT&E Articles Quantity				
<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 will accommodate changes to the ship, its systems and equipment necessitated by equipment obsolescence, operational need, and incorporation of newer systems/technology. Continue fabrication of prototype MTG and develop prototype qualification test plans. 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>				

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003		
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 44008				
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>
BLI 200100 Carrier Replacement Program	135.3	395.5	1186.6	626.0	611.8	2983.9	3811.8	3074.4	Continuing	Continuing
PE 0603512N Carrier System Development	149.6	101.8	141.8	160.1	141.6	92.2	290.2	370.8	Continuing	Continuing
 E. ACQUISITION STRATEGY:										
<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>										
 F. MAJOR PERFORMERS:										
<p>Northrop Grumman Newport News NSWC Carderock</p>										

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2003		
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 44008						
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	4.100	12/02	3.722	12/03	3.890	12/04	Continuing	Continuing	
	SS, CPAF	NGNN, Newport News Va	0.000	48.400	12/02	11.749	12/03	22.548	12/04	Continuing	Continuing	
	MIPR	Anteon Corp, Arlington Va	0.000	5.430	12/02	3.601	12/03	3.785	12/04	Continuing	Continuing	
	Various	Miscellaneous	0.000	10.093	12/02	4.558	12/03	7.890	12/04	Continuing	Continuing	
Subtotal Product Development			0.000	68.023		23.630		38.113		0.000	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		0.000		
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)											DATE: February 2003	
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 44008						
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		0.000				0.000		
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel				0.100		0.100		0.100				
Labor (Research Personnel)												
SBIR Assessment												
Subtotal Management			0.000	0.100		0.100		0.100		0.000		
Remarks:												
Total Cost			0.000	68.123		23.730		38.213		0.000		
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N				PROJECT NUMBER AND NAME S1803 Ship Contract Design			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	39.374	15.520	7.549	18.316	21.855	11.844	10.246	10.332
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 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N	PROJECT NUMBER AND NAME S1803 Ship Contract Design																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cruiser Conversion Program</td> <td style="width: 10%;">FY 02</td> <td style="width: 10%;">FY 03</td> <td style="width: 10%;">FY 04</td> <td style="width: 10%;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>15.820</td> <td>15.520</td> <td>1.799</td> <td>8.899</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Cruiser Conversion Program	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	15.820	15.520	1.799	8.899	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	15.820	15.520	1.799	8.899															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>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 and Baseline 3 lead ship procurement awards.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Heavy Lift LCAC Program</td> <td style="width: 10%;">FY 02</td> <td style="width: 10%;">FY 03</td> <td style="width: 10%;">FY 04</td> <td style="width: 10%;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>5.750</td> <td>9.417</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Heavy Lift LCAC Program	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	0.000	5.750	9.417	RDT&E Articles Quantity				
Heavy Lift LCAC Program	FY 02	FY 03	FY 04	FY 05															
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>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.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">JCC(X) Design Development</td> <td style="width: 10%;">FY 02</td> <td style="width: 10%;">FY 03</td> <td style="width: 10%;">FY 04</td> <td style="width: 10%;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>23.554</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					JCC(X) Design Development	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	23.554	0.000	0.000	0.000	RDT&E Articles Quantity				
JCC(X) Design Development	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	23.554	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>Subsequent to the FY 2003 President's Budget, the Navy decided to terminate the JCC(X) program. Efforts funded in FY 2002 provided initial acquisition documentation, initiated government development and review of design trade studies, initiated mission package evolutionary requirements definition, and initiated definitization of ship functional design. These efforts will be concluded with the remaining FY 2002 funds.</p> </div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																																																																																						
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N	PROJECT NUMBER AND NAME S1803 Ship Contract Design																																																																																							
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N			PROJECT NUMBER AND NAME S1803 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 Conversion	65		194	439	469	447	679	692	2,301	5,287

E. ACQUISITION STRATEGY:

N/A

F. MAJOR PERFORMERS:

N/A

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design LFT&E 0604567N			S1803 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 Conv Class Design	SS/CPAF	Northrop Grumman, Pascagoula, MS	CONT.	8.124	10/02	1.799	10/03	8.899	10/04	CONT.	CONT.	CONT.
CG Conv Electronic Systems Eng	C/CPAF	LMGES, Moorestown, NJ	CONT.	1.600	10/02					CONT.	CONT.	CONT.
CG Conv Electronic Systems Eng	C/CPAF	NAWCAD, Pax River, MD	CONT.	0.300	10/02					CONT.	CONT.	CONT.
CG Conv Ship Integration Eng	C/CPFF	JJMA/CSC/BAE, Arl, VA	CONT.	2.770	10/02					CONT.	CONT.	CONT.
CG Conv Ship Integration Eng	WR/RC	NSWC/DD, Dahlgren, VA	CONT.	1.000	10/02					CONT.	CONT.	CONT.
CG Conv Ship Integration Eng	C/CPFF	NSWC/SSES	CONT.	0.400	10/02					CONT.	CONT.	CONT.
HLCAC Propulsion System Design	TBD	TBD				3.500	12/03	4.000	12/04	CONT.	CONT.	CONT.
HLCAC Structural Design	TBD	TBD				1.202	03/04	2.800	12/04	CONT.	CONT.	CONT.
HLCAC Craft Integration/Systems En	TBD	TBD				0.550	03/04	1.290	12/04	CONT.	CONT.	CONT.
HLCAC Arrangements	TBD	TBD				0.000	03/04	0.500	12/04	CONT.	CONT.	CONT.
JCC(X)	Various	Various	CONT.							CONT.	CONT.	CONT.
Subtotal Product Development			CONT.	14.194		7.051		17.489		0.000	38.734	
Remarks:												
CG Conv Training System Developm	MISC	ATRC, LMGES, Moorestown	CONT.	0.000	10/02					CONT.	CONT.	CONT.
CG Conv Integrated Logistics Suppo	MISC	NSWC/PHD, PRC	CONT.	0.968	10/02					CONT.	CONT.	CONT.
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			CONT.	0.968		0.000		0.000		0.000	0.968	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5			PROGRAM ELEMENT Ship Contract Design LFT&E 0604567N			PROJECT NUMBER AND NAME S1803 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 Conv 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:												
HLCAC Government Engineering Spt	TBD	NSWC DD: Panama City				0.480	12/03	0.800	12/04	CONT.	CONT.	CONT.
HLCACTravel						0.018	12/03	0.027	12/04	CONT.	CONT.	CONT.
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.498		0.827		0.000	1.325	
Remarks:												
Total Cost			CONT.	15.520		7.549		18.316		0.000	41.385	
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 0604567N												S1803 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 Engineering																																
CG Baseline 2 Engineering																																
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Test & Evaluation Milestones																																
CG Conversion:																																
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Recoverability Analyses																																
Total Ship Survivability Trial																																
Vulnerability Analysis Report																																
Production Milestones																																
CG Coverion																																
Procurement Awards																																
Deliveries																																

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R-1 SHOPPING LIST - Item No. 120

Page 120 - 27 of 120 - 43

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 27 of 43)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N				PROJECT NUMBER AND NAME S2198 LFT&E			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	0.000	0.000	4.394	4.492	2.729	1.548	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.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N	PROJECT NUMBER AND NAME S2198 LFT&E		
B. Accomplishments/Planned Program				
Cruiser Conversion Program	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	4.394	4.492
RDT&E Articles Quantity				
<div>Initiate suseptibility, vulnerability, and recoverability analyses for the Cruiser Conversion Program. Initiate 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 2003																																																																												
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N	PROJECT NUMBER AND NAME S2198 LFT&E																																																																													
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design LFT&E 0604567N			PROJECT NUMBER AND NAME S2198 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 Conversion	65		194	439	469	447	679	692	2,301	5,287

E. ACQUISITION STRATEGY:

TBD

F. MAJOR PERFORMERS:

TBD

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design LFT&E 0604567N			S2198 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	
											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 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design LFT&E 0604567N			S2198 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 Conversion LFT&E	TBD	TBD				4.394	10/03	4.492	10/04	4.277	13.163	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		4.394		4.492		4.277	13.163	
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		4.394		4.492		4.277	13.163	
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																S2198 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																																							
Baseline 4 Engineering																																							
Baseline 2 Engineering																																							
Baseline 3 Engineering																																							
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R-1 SHOPPING LIST - Item No. 120

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Exhibit R-4a, Schedule Detail

(Exhibit R-4a, page 35 of 43)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N				PROJECT NUMBER AND NAME S2465 LHA(R)			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
S2465 / LHA(R)	0.000	0.000	64.873	44.569	40.659	46.477	32.549	15.641
S9235 / LHA R Design	0.000	9.780	0.000	0.000	0.000	0.000	0.000	0.000
S9236 / LHA R Transfer from LHD	0.000	29.339	0.000	0.000	0.000	0.000	0.000	0.000
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
The five ships of the LHA 1 Class are scheduled to reach the end of their 35 year service life starting in 2011. Replacement ships are required to support amphibious operations. 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 a vehicle and well deck of an LPD. The design allowed the use of helicopters and landing craft to conduct amphibious assaults. A technology has 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. New systems being developed require advances in capabilities. Yhe MV-22, AAAV, 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 new capabilities.								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N	PROJECT NUMBER AND NAME S2465 LHA(R)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 02</td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <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;">64.873</td> <td style="text-align: center;">36.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	0.000	64.873	36.000	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	64.873	36.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>Transition from early stage design into the efforts leading to shipbuilding contract award for LHA(R) 1. Continue resolution of 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. Continue Warfare System design refinement. 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.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">LHAR 2</td> <td style="width: 15%; text-align: center;">FY 02</td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <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;">8.569</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					LHAR 2	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	8.569	RDT&E Articles Quantity				
LHAR 2	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	8.569															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>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. Continue Warfare System design refinement. 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.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 02</td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N	PROJECT NUMBER AND NAME S2465 LHA(R)		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 03 Pres Controls)	0.000	0.000	0.000	14.377
Current BES/President's Budget: (FY04/05 OSD/OMB Controls)	0.000	0.000	64.873	44.569
Total Adjustments	0.000	0.000	64.873	30.192
Summary of Adjustments				
Program acceleration			67.000	31.623
Congressional program reductions				
Congressional undistributed reductions				
Congressional rescissions				
SBIR/STTR Transfer				
Economic Assumptions			-2.127	-1.431
Congressional increases				
Subtotal	0.000	0.000	64.873	30.192

Schedule:

LHA(R) 1 shipbuilding contract award has been accelerated to FY07, and LHA(R) 2 shipbuilding contract award is planned for FY10. Design efforts funded in RDT&E,N leading to shipbuilding contract awards have been scheduled accordingly.

Technical:

Not Applicable.

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-5			PROGRAM ELEMENT NUMBER AND NAME Ship Contract Design / LFT&E 0604567N			PROJECT NUMBER AND NAME S2465/S9235/S9236 LHA(R)				

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>
PE 0603563N Ship Concept Advanced Design		0	0	0	0	0	0	0		
PE 0603564N Ship Prel. Design&Feas. Studies		0	0	0	0	0	0	0		
SCN 304100 LHA Replacement	0	0	0	0	0	3,094.041	0	0.000	TBD	TBD

E. ACQUISITION STRATEGY:

The acquisition strategy for the contract design and for the detail design and construction of LHAR1 is continuing to be addressed within the Navy. One of the strategies being address 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.

F. MAJOR PERFORMERS:

TBD

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design / LFT&E 0604567N			S2465 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	Cost to Complete	Total Cost	Target Value of Contract
Ship Design	TBD	TBD	0.000	0.000	03/03	43.873	10/03	21.569	10/04	CONT.	65.442	CONT.
Systems Engineering	TBD	TBD	0.000	0.000	03/03	21.000	10/03	23.000	10/04	CONT.	44.000	CONT.
											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		64.873		44.569		0.000	109.442	
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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Exhibit R-3 Cost Analysis (page 2)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			Ship Contract Design / LFT&E 0604567N			S2465 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	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											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	39.119		64.873		44.569		0.000	148.561	
Remarks:												

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EXHIBIT R4, Schedule Profile																							DATE:				February 2003					
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-5										Ship Contract Design / LFT&E 0604567N										S2465 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	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																																
Production Milestones																																
LHA(R) 1 Shipbuilding Contract Award																				△												
Deliveries																																

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