## **UNCLASSIFIED**

	EXHIBIT R-	2, RDT&E B	udget Item .				DATE:				
									Ju	ne 2001	
APPROPRIATION/BUDGET ACT	IVITY					R-1 ITEM NO	MENCLATUR	E			
RESEARCH DEVELOPME	Ship Contrac	t Design/Live	Fire T&E PE (	604567N	<del>,</del>						
COST (	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost				
Total PE Cost         57.901         77.488         130.388         Continuing								Continuing			
Carrier Contract Design	42301	33.806	45.887	85.781						Continuing	Continuing
Ship Contract Design	S1803	22.892	31.601	44.607						Continuing	Continuing
Ship Specifications	S2197	1.195	0.000	0.000						Continuing	Continuing
Live Fire Test & Evaluation	S2198	0.000	0.000	0.000						Continuing	Continuing
LHA Replacement	S2465	0.008	0.000	0.000						TBD	TBD
Quantity of RDT&E Articles		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. Mission Description and Budget Item Justification: This Program Element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of all post Feasibility Study (usually after Program initiation (ex Milestone I)) engineering, programmatic and acquisition documentation (except DD 21 which is covered by PE 0604300N). This includes ship specifications (including performance specifications) and contractual documentation associated with acquisition of Navy ships. This line 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 prospective 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 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 stud

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/IndustryIntegrated 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. This may involve continuing efforts (where Program Initiation (ex Milestone I) has not occurred, and/or after Milestone B (ex Milestone II)) in those cases where IPTs would be disrupted after Feasibility Study conclusion and/or award of a shipbuilding contract.

R-1 SHOPPING LIST - Item No. 126 -1 of 126 -18

Exhibit R-2, RDT&E Budget Item Justification (Exhibit R-2, page 1 of 18)

# **UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget It	em Justification		DATE:				
				June 2001			
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOME	NCLATURE				
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/I	BA 5	Ship Contract Design/Live Fire T&E PE 0604567N					
B. Program Change Summary:							
	FY 2000	FY 2001	FY2002				
FY 2001 President's Budget:	60.283	62.204	81.933				
Appropriated Value:	61.135	78.204					
Adjustment to FY2000/2001 Appropriated Value/							
FY 2001 President's Budget::	-3.234	-0.716	7.455				
FY 2002PRES Budget Submitt:	57.901	77.488	89.388				
Funding:							
FY 00 adjustments due to SBIR (-1.200), mid-year adjustment (		'	,				
FY 01 adjustments: Congressional pro-rata reduction (547), a FY 02 adjustments due to CVX adjustment (+19.300), JCC(X)	•		, ,	(2) and minor pricing adjustment (344)			
Schedule: Schedule changes will be identified in the R-2a exhibits.	aujustinent (-10.000), 3CC(A)	Li Tal aujustillelit (-1.	<i>311)</i> , NVVOF Auj. (-0.21	2) and minor pricing adjustment (.344).			

Technical: Not Applicable.

R-1 SHOPPING LIST - Item No 126 -2 of 126 -18

Exhibit R-2, RDT&E Budget Item Justificat

(Exhibit R-2, page 2 of 18)

## **UNCLASSIFIED**

EXHIBI7	R-2a, RDT&	E Project Ju			DATE:					
				Jui	ne 2001					
APPROPRIATION/BUDGET ACTIVITY	ME AND NUN	/IBER								
RDT&E, N/BA 5	act Design 423	01								
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost 33.806 45.887 44.781 85.091 80.745 52.487 28.314 28.955 Continu							Continuing	Continuing		
RDT&E Articles Qty	0	0	0	0	0	0	0	0	N/A	N/A

A. Mission Description and Budget Item Justification: This project encompasses CVN 77 and CVNX Contract Design and CVNX LFT&E 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. CVN 77 Warfare Systems 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 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 (X). 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. This effort will be herein referred to as Warfare Systems Integration (WSI).

CVNX Total Ship Integration, the integration of major systems into ship design, is a continuation of the effort commenced within PE0603512N, PU 42693. 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, airborne noise management, reduction of s 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 CVNX LFT&E effort consists of vulnerability and susceptibility assessments of the new CVNX design and accomplishes congressionally mandated LFT&E.

FY 2000 Accomplishments:

(U) (\$6.698) Contract Design – This effort completed the Contract Data Package (CDP) necessary to complete the contract design for the CVN 77. The Contract Data Package (CDP) incorporated changes to the ship design, necessary because of equipment obsolescence, and/or the insertion of newer systems/technologies that will reduce life cycle cost and manpower requirements.

R-1 SHOPPING LIST - Item No. 126 -3 of 126 -18

Exhibit R-2a, RDT&E Project Justification

(Exhibit R-2a, page 3 of 18

## **UNCLASSIFIED**

	DATE:		
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUM	MBER
RDT&E, N/BA 5	Ship Cont Design/Live Fire T&E PE 0604567	Carrier Contract Design 423	301

- (U) (\$17.108) Warfare Systems Integration (WSI) Completed competitive solicitation for an Electronic Systems Integrator (ESI) team to partner with Newport News Shipbuilding in an effort to develop an Integrated Warfare System for the CVN 77. Commenced assessment of the winning ESI concept and its integration into the ship contract data package. Continued monitoring improvements targeted at reducing the life cycle costs of the ship's war fighting systems. Initiatives focused on reducing the number of systems through the use of "multi-function" radars and flat planar antenna arrays, data exchange across operational areas, data fusion, and integrated displays for operators. Initiated post-competition IPTs and commenced trade studies targeted at determining "best value" solutions by balancing cost reductions with operational performance and schedule. Commenced concept design refinement.
- (U) (\$10.000) Propulsion and Electric Power Generation Began development of updated detectors and valve control systems to accommodate generic instrumentation and control equipment. Developed validation models and began testing consolidated throttle control and electric plant control panel (EPCP). Completed developmentand began testing a re-designed purification system. Continued development of improved shielding.

#### FY 2001 PLAN:

- (U) (\$1.139) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U) (\$25.268) Warfare Systems Integration Continue concept design refinement. Continue monitoring improvements targeted at reducing the life cycle costs of the ship's Warfare Systems, including the traditional combat system, C4ISR, and aviation functional requirements. Initiatives remain focused on reducing the number of systems through the use of "multi-function" radars and flat planar antenna arrays, data exchange across operational areas, data fusion, and integrated displays for operators. Continue cooperativeradar developments with DD-21 program regarding integration of and procurement of MFR and VSR. Continue exploring additional areas for cooperation with DD-21 such as combat system software integration and common computing. Continue trade studies to mitigate risk and determine "best value" solutions. Continue refinement of Warfare Systems Integration design and integrate into the ship design.
- (U) (\$11.744) Propulsion and Electric Power Generation Start development of shipboard equipment for consolidated throttle control and remote EPCP. Complete development and drawings for improved shielding. Complete development and testing of detectors and continue development of valve control system. Continue testing of the purification system and complete drawings and procedure changes.
- (U) (\$7.736) SmartProduct Model Obtain design data to advance the development of the smart product model of the CVN/CVNX. Augment the design development of the smart product for additional areas of the ship to provide for cost effective insertion of new technologies through reduction of engineering effort required to incorporate changes and to support more productive automated manufacturing.

R-1 SHOPPING LIST - Item No. 126 -4 of 126 -18

Exhibit R-2a, RDT&E Project Justification (Exhibit R-2a, page 4 of 18)

## **UNCLASSIFIED**

EXHI	BIT R-2a, RDT&E Project Justification		DATE:	
				June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUM	MBER	
RDT&E, N/ BA 5	Ship Cont Design/Live Fire T&E PE 0604567	Carrier Contract Design 423	301	
•				

#### FY 2002 PLAN:

- (U) (\$1.947) 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.
- (U) (\$9.284) CVNX 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.
- (U) (\$74.550) 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. The update will accommodate changes to future carriers, future carrier systems, and future carrier equipment necessitated by equipment obsolescence, operationalneed, and the need to incorporation for newer systems/technologyto meet ORD requirements and reduce Total Ownerships Cost (TOC). Conduct 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. 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.

FY 2000	FY 2001	FY 2002
104.240	123.378	124.469
23.815	14.230	33.435
747.503	4,038.105	
	23.815	104.240 123.378 23.815 14.230

C. Acquisition Strategy: The Carrier acquisition strategy is that CVN 77 and follow-on hulls will be acquired/managed using a phased technology insertion or "evolutionary" strategy. Technologies include "multi-function" radars and flat planar antenna ar

Program Milestones

Engineering Milestones

CVN 68 Class has been approved at Milestone III

CVN 68 Class has been approved at Milestone III

CVN 68 Class has been approved at Milestone III

CVN 68 Class has been approved at Milestone III

R-1 SHOPPING LIST - Item No. 126 -5 of 126 -18

Exhibit R-2a, RDT&E Project Justification (Exhibit R-2a, page 5 of 18)

## **UNCLASSIFIED**

- I I I I D 0 0 1 4 1 1 1 1	4\							DATE:					
Exhibit R-3 Cost Analysis (page 1)						PROJECT NAME AND NUMBER							
APPROPRIATION/BUDGET ACT	VITY	PROGRAM E					_						
RDT&E, N/BA 5		Ship Cont	Design/Liv	e Fire T&E	PE 0604567	Carrier Contr	act Design 423	01					
Cost Categories	Contract	Performing	Total		FY 00		FY 01		FY 02				
Tailor to WBS, or System/Item	Method	Activity &	PY	FY 00	Award	FY 01	Award	FY 2002	Award	Cost to	Total	Target Valu	
Requirements)	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract	
Product Development	PR,SS	Newpt News Shipbldg, Va	18.548	14.865	11/99	26.036	01/01	27.795	11/01	Cont.	Cont.	Cont.	
	SS,CPFF	Bettis Atomic Power Labs,Pa	19.000	10.000	11/99	11.744	10/00	1.947	10/01	0.000	42.691	42.691	
	WR	NAWC Lakehurst NJ	2.828	0.790	02/00	0.360	03/01	0.730	12/01	Cont.	Cont.	Cont.	
	WR	NSWC Dahlgren Va	4.515	3.805	02/00	3.383	12/00	2.634	12/01	Cont.	Cont.	Cont.	
	GSA	Nichols Advance Marine, Va	3.049				12/00			Cont.	Cont.	Cont.	
	PD/WR	SPAWAR, Ca	1.680	0.430	02/00	0820	11/00	0.629	11/01	Cont.	Cont.	Cont.	
	WR	NSWC Carderock MD		1.324	02/00	0.100	12/00	0.675	11/01	Cont.	Cont.	Cont.	
	FAD	PEO DD 21	0.200	1.000	02/00	0.000	11/00	0.000	11/01	Cont.	Cont.	Cont.	
	Various	Miscellaneous (under \$1M)	14.117	1.502	11/99-6/00	3.050	11/00	1.007	11/01	Cont.	Cont.	Cont.	
SBIR		Miscellaneous				1.139							
Subtotal Product Development			63.937	33.716		45.812		35.417		Cont.	Cont.	Cont.	
Note: PY total includes S2431	II.	1					1						
Pevelopment Support Equipment			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
GFE .			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Subtotal Support		1	0.000	0.000		0.000	1 -	0.000		0.000	0.000	0.000	

R-1 SHOPPING LIST - Item No. 126-6 of 126-18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 6 of 18)

## **UNCLASSIFIED**

								DATE:				
Exhibit R-3 Cost Analysis (p										June 20	)1	
APPROPRIATION/BUDGET ACT	IVITY		PROGRAM ELEMENT				NAME AND NU	JMBER				
RDT&E, N/BA 5			Ship Cont Design/Liv	ve Fire T&E	PE 0604567	Carrier Con	tract Design 42	2301				
Cost Categories	Contract	Performing	Total		FY 00		FY 01		FY 02			
(Tailor to WBS, or System/Item	Method	Activity &	Award	FY 00	Award	FY 01	Award	FY 2002	Award	Cost to	Total	Target Valu
Requirements)	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Developmental Test & Evaluation			0.000	0.000	02/00	0.000	01/00	0.000	01/00		0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Live Fire Test & Evaluation	TBD	NSWC CD, M	ID					9.284		0.000	9.284	9.284
Subtotal T&E			0.000	0.000		0.000		9.284		0.000	9.284	
Contractor Engineering Support											0.000	
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel				0.090		0.075		0.080			0.245	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.090		0.075		0.080		0.000	0.245	
Remarks:												
Total Cost			63.937	33.806		45.887		44.781		Continuing	Continuing	Continuing

R-1 SHOPPING LIST - Item No. 126 -7 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 7 of 18)

### **UNCLASSIFIED**

EXHIBIT R-2a, RDT&	E Project Justificat	tion				DATE:				
									ne 2001	
APPROPRIATION/BUDGET ACTIVITY										
RDT&E, N/BA 5 Ship Contract Design/LFT&E PE 0604567N Ship Contract Design S1803										
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	22.892	31.601	44.607						Continuing	Continuing
RDT&E Articles Qty		0	0						N/A	N/A

A. Mission Description and Budget Item Justification: This project supports development of all technical, programmatic and contractual documentation required after feasibility studies 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 and evaluation 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 Ships.

### FY 2000 Accomplishments:

- (U) (\$ 5.045) Continued Planning Yard CG Modernization Contract Design.
- (U) (\$ 3.000) Commenced CG Government Team support for design products.
- (U) (\$ 1.800) Commenced CG Electronic System design.
- (U) (\$ 4.915) Commenced T-ADC(X) Industry teams to support Engineering Design efforts.
- (U) (\$ 7.558) Commenced T-ADC(X) Government/Industry teams, develop RFP and support Source Selection.
- (U) (\$ 0.574) Commenced Trimaran Design.

### FY 2001 PLAN:

- (U) (\$13.248) Continue Planning Yard CG Modernization Contract Design.
- (U) (\$ 7.390) Continue CG Government Team support for design products, including ship design data base and specifications.
- (U) (\$ 2.000) Continue CG Electronic System design.
- (U) (\$ 0.556) Continue Trimaran Design.
- (U) (\$ 7.741) Commence Littoral Support Fast Patrol Craft Design.
- (U) (\$ 0.666) Portion of extramural program reserved for Small Business Innovation Researcg assessment in accordance with 15 USC 638.

R-1 SHOPPING LIST - Item No. 126 -8 of 126 -18

Exhibit R-2a, RDT&E Project Justification

(Exhibit R-2a, page 8 of 18

# **UNCLASSIFIED**

EXHIBIT F	R-2a, RDT&E Project Justification		DATE:	
				June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUM	/IBER	
RDT&E, N/BA 5	Ship Contract Design/LFT&E PE 0604567N	Ship Contract Design S1803	3	
FY 2002 PLAN:  (U) (\$8.011) Continue Planning Yard CG Modernization (U) (\$6.300) Continue CG Government Team support for (U) (\$1.650) Continue CG Electronic System design.  (U) (\$12.300) Commence JCC(X) Ship Design by Indus (U) (\$5.900) Commence JCC(X) MIssion Package Desig (U) (\$6.746) Commence JCC(X) Ship Design Acquisition (U) (\$3.700) Commence Host Platform Design Definition  B. Other Program Funding Summary  FY 2000 FY 2001  PE 0603563N Ship Concept Advanced Design  31.995 5.115  PE 0603564N Ship Preliminary Design & Feasibility Stud  9.969 56.374	try Teams In Documentation Development  FY 2002  1.949	ecifications.	То	Total
C. Acquisition Strategy:				
D. Schedule:				

R-1 SHOPPING LIST - Item No. 126 -9 of 126 -18

Exhibit R-2a, RDT&E Project Justification (Exhibit R-2a, page 9 of 18)

## **UNCLASSIFIED**

									DATE:				
Exhibit R-3 Cost Analysis (page	je 1)										June 200	1	
APPROPRIATION/BUDGET ACTIVIT	TY	F	PROGRAM EL	EMENT			PROJECT N	AME AND NUM	MBER				
RDT&E, N/BA 5			Ship Contract	Design/Live F	Fire T&E PE	0604567N	Ship Contra	ct Design S180	13				
Cost Categories	Contract	Performing		Total		FY 00		FY 01		FY 02			
(Tailor to WBS, or System/Item	Method	Activity &		PY s	FY 00	Award	FY 01	Award	FY 02	Award	Cost to	Total	Target Value
Requirements)	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Class Drawings	SS/CPAF	Ingalls Shipbuil	ding, Pascage	Cont.	5.045	Note 1	16.890	Continuing	8.011	Note 1	Continuing	Continuing	Continuing
Electronic Systems	C/CPAF	LMGES, Morris	stown, NJ	0.000	1.800	N/A	2.850	Note 1	1.000	Note 1	Continuing	Continuing	Continuing
Ship Integration/Systems Engineering	gC/CPFF	JJMA, Arlingtor	n VA	Continuing	3.609	Note 1	0.500	Note 1	0.520	Note 1	Continuing	Continuing	Continuing
Ship Integration/Systems Engineering	gC/CPFF	CSCAME		Continuing	1.339	Note 1	0.500	Note 1	4.000	Note 1	Continuing	Continuing	Continuing
Equipment Support	WR	NSWC, MD/PA/\	/A	Continuing	0.140	TBD	1.000	N/A	5.332	11/01	Continuing	Continuing	Continuing
Engineering Design	MISC	Shipyards /TBD		Continuing	5.400	TBD	0.000	MISC	15.000	N/A	0.000	Continuing	Continuing
Ship Integration/Systems Engineering	gC/CPFF	Gibbs and Cox		0.000	0.000	N/A	0.000	N/A	0.620	N/A	0.000	0.620	0.620
Mission System Design	WR	SPAWAR, San D	Diego,CA	Continuing	0.000	N/A	0.000	N/A	3.891	TBD	Continuing	Continuing	Continuing
Littoral Craft Design	PD	ONR, Arlington, V	/A	0.000	0.000	N/A	7.944	11/00	0.000	N/A	0.000	7.944	7.944
Subtotal Product Development				Continuing	17.333		29.684		38.374		Continuing	Continuing	Continuing

Remarks: Note 1. Existing Contract

Engineering Support	Misc	Misc	Continuing	3.519	Misc	0.873	Misc	0.000	Misc	Continuing	Continuing	Continuing
Software Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Training Development	WR	ATRC	0.000	0.000		0.000		1.269	Misc	0.000	1.269	1.269
Integrated Logistics Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Configuration Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Technical Data			0.000	0.000		0.000		0.000		0.000	0.000	0.000
GFE			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Subtotal Support			Continuing	3.519		0.873		1.269		Continuing	Continuing	Continuing

Remarks:

R-1 SHOPPING LIST - Item No. 126 -10 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 10 of 18)

## **UNCLASSIFIED**

									DATE:				
Exhibit R-3 Cost Analysis (pa	ge 2)										June 2001	1	
APPROPRIATION/BUDGÉT ACTIV	/ITY		PROGRAM E	LEMENT			PROJECT N	IAME AND NUI	MBER				
RDT&E, N/BA 5			Ship Contrac	t Design/Live F	Fire T&E PE	0604567N	Ship Contra	ct Design S180	)3				
Cost Categories	Contract	Performing		Total		FY 00		FY 01		FY 02			1
(Tailor to WBS, or System/Item	Method	Activity &		PY s	FY 00	Award	FY 01	Award	FY 02	Award	Cost to	Total	Target Value
Requirements)	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Developmental Test & Evaluation	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Operational Test & Evaluation	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Tooling	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
GFE	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Subtotal T&E				0.000	0.000		0.000		0.000		0.000	0.000	0.000
Contractor Engineering Support		Misc		0.000	0.000		0.000		1.643		0.000	1.643	2.710
Government Engineering Support	Misc	Misc		Continuing	1.000	Misc	0.000	Misc	1.621	Misc	Continuing	Continuing	Continuing
Program Management Support	Misc	Misc		Continuing	1.000	Misc	1.004	Misc	1.500	Misc	Continuing	Continuing	Continuing
Travel	N/A	N/A		Continuing	0.040	Misc	0.040	Misc	0.200	Misc	Continuing	Continuing	Continuing
Labor (Research Personnel)				0.000	0.000		0.000				0.000	0.000	0.000
Overhead				0.000	0.000		0.000				0.000	0.000	0.000
Subtotal Management				Continuing	2.040		1.044		4.964		Continuing	Continuing	Continuing
Remarks:													
Total Cost				Continuing	22.892		31.601		44.607		Continuing	Continuing	Continuing
Remarks:													

R-1 SHOPPING LIST - Item No. 126 -11 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 11 of 18)

## **UNCLASSIFIED**

EXHIBIT	R-2a, RDT&	E Project Ju	stification				DATE:			
								Jui	ne 2001	
APPROPRIATION/BUDGET ACTIVITY										
RDT&E, N/BA 5	Ship Contrac	t Design/Live F	ire T&E PE (	604567N	Ship Specifica	ations S2197				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	1.195	0.000	0.000						Continuing	Continuing
RDT&E Articles Qty		0	0						N/A	N/A

A. Mission Description and Budget Item Justification: This project funds the development, improvement, and update of NAVSEA cognizant acquisition specifications including integration of Federal and Military Specifications, handbooks, general specifications for Ships of the U.S. Navy and COTS equipment/systems into a Performance Based, biddable ship contract design acquisition package. These documents are required to reflect the latest technologies (i.e. open systems architecture for information and power systems), manufacturing techniques, environmental requirements, hazardous material reduction, safety and legal/Congressional requirements.

### FY 2000 Accomplishments:

(\$0.470) Continued to develop, improve and update NAVSEA cognizant acquisition specifications. Continued development of specification data base and Open Systems architecture. (\$0.725 Continued development of Performance Based Ship Acquisition Specification Program.

FY 2001 Plan: N/A

FY 2002 Plan: N/A

B. Other Program Funding Summary

FY 2000 FY 2001 FY 2002

PE 0603563N Ship Concept Advanced Design

31.995 5.115

1.949

0603564N Ship Preliminary Design & Feasibility Studies

9.969 56.374 14.922

C. Acquisition Strategy: N/A
D. Schedule Profile: N/A

R-1 SHOPPING LIST - Item No. 126 -12 of 126 -18

Exhibit R-2a, RDT&E Project Justification

(Exhibit R-2a, page 12 of 18)

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Total

## **UNCLASSIFIED**

									DATE:				
Exhibit R-3 Cost Analysis (page	ge 1)										June 200	1	
APPROPRIATION/BUDGET ACTIV	TTY		PROGRAM E	LEMENT			PROJECT N	NAME AND NUN	/BER				
RDT&E, N/BA 5			0604567N S	Ship Contra	act Design	LF T&E	Ship Specif	ications S2197					
Cost Categories	Contract	Performing		Total		FY 00		FY 01		FY 02			
(Tailor to WBS, or System/Item	Method	Activity &		PY s	FY 00	Award	FY 01	Award	FY 02	Award	Cost to	Total	Target Value
Requirements)	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Primary Hardware Development				0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Ancillary Hardware Development				0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Performance Based Specifications	C/CPFF	JJMA, Arlingto	on, VA	Continuing	0.700	Note 1	0.000	N/A	0.000	N/A	Continuing	Continuing	Continuing
Specification Improvements	C/CPFF	AME, Arlingto	n, VA	Continuing	0.400	Note 1	0.000	N/A	0.000	N/A	Continuing	Continuing	Continuing
Specification Improvements	Misc.	Misc.		Continuing	0.000	Misc.	0.000	N/A	0.000	N/A	Continuing	Continuing	Continuing
GFE				0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Award Fees				0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Subtotal Product Development				Continuing	1.100		0.000		0.000		Continuing	Continuing	Continuing

Remarks: Note 1. Existing Contract

Development Support Equipment	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Software Development	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Training Development	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Integrated Logistics Support	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Configuration Management	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Technical Data	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
GFE	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	N/A

Remarks:

R-1 SHOPPING LIST - Item No. 126 -13 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 13 of 18)

## **UNCLASSIFIED**

									DATE:				
Exhibit R-3 Cost Analysis (pa	ge 2)										June 200	1	
APPROPRIATION/BUDGET ACTIV	ITY		PROGRAM E	LEMENT			PROJECT N	AME AND NU	JMBER				
RDT&E, N/BA 5			PE 060456	7N Ship Co	ntract Desi	gn/LFT&E	Ship Specific	ations S2197					
Cost Categories	Categories Contract Performing Total FY 00							FY 01		FY 02			
(Tailor to WBS, or System/Item	Method	Activity &		PY s	FY 00	Award	FY 01	Award	FY 02	Award	Cost to	Total	Target Value
Requirements)	& Type	Location					Cost	Date	Cost	Date	Complete	Cost	of Contract
Developmental Test & Evaluation	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Operational Test & Evaluation	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Tooling	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
GFE	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Subtotal T&E				0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:													

Contractor Engineering Support	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Government Engineering Support	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Program Management Support	C/CPFF	ROH, Arlington, VA	Continuing	0.095	Note 1	0.000	Note 1	0.000	Note 1	Continuing	Continuing	Continuing
Travel	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Labor (Research Personnel)	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Overhead	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Subtotal Management			Continuing	0.095		0.000		0.000		Continuing	Continuing	Continuing

Remarks: Note 1: This is an existing level of effort contract which will be funded by tasks each FY.

Total Cost	Continuing	1.195	0.000	0.000	Continuing	Continuing	Continuing

Remarks:

R-1 SHOPPING LIST - Item No. 126 -14 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 14 of 18)

## **UNCLASSIFIED**

EXHIBI	T R-2a, RDT&l	E Project Ju	stification				DATE:			
								Jui	ne 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E	LEMENT NAM	IE AND NUMB	ER	PROJECT NA	ME AND NU	/IBER			
RDT&E, N/BA 5 Ship Contract Design LFT&E 0604567N LHA Replacement S2465										
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	0.008	0.000	0.000						TBD	TBD
RDT&E Articles Qty	0	0	0						N/A	

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. Replacementships 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. As 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 ship capabilities. The 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 OMFTS, STOM and Seabased logistics, the operationalk requirements will increase.

FY 2000 Accomplishments:

(\$0.008) Commenced LHA Replacement Design Planning.

FY 2001 PLAN: N/A

FY 2002 PLAN: N/A

R-1 SHOPPING LIST - Item No. 126 -15 of 126 -18

Exhibit R-2a, RDT&E Project Justification (Exhibit R-2a, page 15 of 18)

# **UNCLASSIFIED**

EXHIBIT I	R-2a, RDT&E Project Justification	DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA 5	Ship Contract Design/Live Fire T&E PE 0604567N	LHA Replacement 2465
B. Other Program Funding Summary		To Total
FY 2000 FY 200	01 FY 2002	
PE 0603563N Ship Concept Advanced Design 31.995 5.115	1.040	
31.995 5.115 PE 0603564N Ship Preliminary Design & Feasibility Stud		
9.969 56.374		
0.000 00.014	14.022	
C. Acquisition Strategy: The acquisition strategy will se	e a design competition in the early contract design phase	e (Phase I) with a down select to a single industry team for Phase II. Detail design and
		d identify design requirements. Industry teams may then compete for the Phase I Contract
Design with a down select for Phase II. The Detail Design	n and Construction could be awarded to that team or com	peted.
D. Schedule: Award is scheduled for FY 08		

R-1 SHOPPING LIST - Item No. 126 -16 of 126 -18

Exhibit R-2a, RDT&E Project Justification (Exhibit R-2a, page 16 of 18)

## **UNCLASSIFIED**

									DATE:				
Exhibit R-3 Cost Analysis (pa	ge 1)										June 20	01	
APPROPRIATION/BUDGET ACTIV	/ITY		PROGRAM E	LEMENT PE	0604567N		PROJECT N	NAME AND NUN	/BER				
RDT&E, N/BA 5			Ship Contr	act Design	Live Fire T	&E	LHA Contra	ct Design S2465	5				
Cost Categories	Contract	Performing		Total		FY 00		FY 01		FY 02			
(Tailor to WBS, or System/Item	Method	Activity &		PY s	FY 00	Award	FY 01	Award	FY 02	Award	Cost to	Total	Target Value
Requirements)	& Type	Location		Cost Cost Date				Date	Cost	Date	Complete	Cost	of Contract
Primary Hardware Development	N/A	N/A		0.000 0.000 N/A				N/A	0.000	N/A	0.000	0.000	0.000
Ancillary Hardware Development	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Systems Engineering	C/CPFF	CSC AME	Arlington,VA	0.000	0.008	Note 1	0.000	N/A	0.000	N/A	0.000	0.008	0.008
Licenses	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Tooling	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
GFE	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Award Fees	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Subtotal Product Development			0.000 0.008 N/A				0.000		0.000		0.000	0.008	0.000

Remarks: Existing Contract

Development Support Equipment	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Software Development	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Training Development	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Integrated Logistics Support	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Configuration Management	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Technical Data	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
GFE	N/A	N/A	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000

Remarks:

R-1 SHOPPING LIST - Item No. 126 -17 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 17 of 18)

## **UNCLASSIFIED**

									DATE:				
Exhibit R-3 Cost Analysis (pa	ge 2)										June 200	01	
APPROPRIATION/BUDGET ACTIV	'ITY		PROGRAM E	LEMENT PE	0604567N		PROJECT N	IAME AND N	NUMBER				
RDT&E, N/BA 5			Ship Cont	ract Desigi	/Live Fire	T&E	LHA Contrac	t Design S2	465				
Cost Categories	Contract	Performing	-	Total		FY 00		FY 01		FY 02			
(Tailor to WBS, or System/Item	Method	Activity &		PY s	FY 00	Award	FY 01	Award	FY 02	Award	Cost to	Total	Target Value
Requirements)	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Developmental Test & Evaluation	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Operational Test & Evaluation	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Tooling	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
GFE	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Subtotal T&E				0.000	0.000		0.000		0.000		0.000	0.000	

Remarks:

Design Management Support	C/CPFF	AME, Arlington VA		0.000	0.000	N/A	0.008	Note 1	0.500	N/A	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various	VA,MD,PA	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Program Management Support	N/A	TBD		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Travel	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	TBD	0.000	N/A
Labor (Research Personnel)	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Overhead	N/A	N/A		0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	N/A
Subtotal Management				0.000	0.000		0.000		0.000		Continuing	Continuing	Continuing

Remarks: Note 1. Existing Contract

Total Cost	0.000	0.008	0.000	0.000	Continuing	Continuina	Continuing

Remarks:

R-1 SHOPPING LIST - Item No. 126 -18 of 126 -18

Exhibit R-3, Project Cost Analysis (Exhibit R-3, page 18 of 18)