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**Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	91.771	153.686	161.099	-	161.099	190.301	138.186	104.039	93.153	Continuing	Continuing
1803: <i>Ship Contract Design</i>	8.017	18.464	18.642	-	18.642	20.304	19.994	18.608	18.784	Continuing	Continuing
2465: <i>LHA(R) FLT Design and Total Ship Integration</i>	8.720	10.383	26.702	-	26.702	29.195	26.892	14.289	3.949	Continuing	Continuing
3108: <i>CVN 80 Total Ship Integration</i>	-	-	-	-	-	42.961	47.457	47.678	47.052	Continuing	Continuing
3133: <i>Sea Base to Shore Connectors (Contract Des)</i>	33.853	20.349	2.468	-	2.468	0.882	0.078	3.812	3.632	Continuing	Continuing
3137: <i>SSC Construction</i>	-	80.463	92.466	-	92.466	81.085	27.789	3.314	3.102	Continuing	Continuing
3179: <i>CVN-79 Total Ship Integration</i>	35.723	21.324	19.176	-	19.176	14.697	14.804	15.141	15.415	Continuing	Continuing
4007: <i>CVN 21 LFT&amp;E</i>	2.271	2.703	1.645	-	1.645	1.177	1.172	1.197	1.219	Continuing	Continuing
9999: <i>Congressional Adds</i>	3.187	-	-	-	-	-	-	-	-	0.000	3.187

**A. Mission Description and Budget Item Justification**

This Program Element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of engineering, programmatic and acquisition documentation including ship specifications (including performance specifications) and contractual documentation associated with acquisition of Navy ships. This PE also supports the Congressionally mandated Live Fire Test and Evaluation (LFT&E) program for new ship designs.

Contract Design has traditionally been the engineering development of the technical and contractual definition of the ship design (including ship specifications and drawings) to a level of detail sufficient for shipbuilders to make a sound estimate of the construction cost and schedule. Additionally, the contract design package developed under this PE has provided the technical baseline from which the Navy selects the shipbuilder who then develops the detail design package required to support the construction and eventual delivery of the ship. This PE also supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions, and supports engineering planning and ship affordability studies.

Under Acquisition Reform for new design ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering Integrated Product and Process Development (IPPD) process extending through and after contract award. This serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder, system programs, and suppliers. Government/Industry Integrated Product Team(s) (IPTs) will utilize the IPPD process to develop the design in an Integrated Product and Data Environment (IPDE). The design approach is part of an acquisition strategy that is based on commercial practices and incorporates a phased technical definition.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>
Previous President's Budget	91.587	153.686	153.107	-	153.107
Current President's Budget	91.771	153.686	161.099	-	161.099
Total Adjustments	0.184	-	7.992	-	7.992
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	3.865	-			
• SBIR/STTR Transfer	-3.125	-			
• Program Adjustments	-	-	9.651	-	9.651
• Section 219 Reprogramming	-0.545	-	-	-	-
• Rate/Misc Adjustments	-	-	-1.659	-	-1.659
• Congressional General Reductions Adjustments	-0.011	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project: 9999: Congressional Adds**

Congressional Add: *Automated Fiber Optic Manufacturing Initiative*

Congressional Add: *Landing Craft Composite Lift Fan*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2010</b>	<b>FY 2011</b>
	1.992	-
	1.195	-
Congressional Add Subtotals for Project: 9999	3.187	-
Congressional Add Totals for all Projects	3.187	-

**Change Summary Explanation**

Increases in FY 2012 primarily associated with efforts supporting the LHA-8 within project 2465

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 1803: <i>Ship Contract Design</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
1803: <i>Ship Contract Design</i>	8.017	18.464	18.642	-	18.642	20.304	19.994	18.608	18.784	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

**CG and DDG Modernization:**

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 planning yard to make a sound estimate of cost and schedule. It also serves as the technical definition from which the planning yard develops the detailed design and testing package required to build and test the ship. 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.

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 supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations. This project also supports ship survivability studies, superstructure integrity analysis, developmental and operational testing, gun weapon system software integration and next generation Machinery Control System (MCS) software integration.

**DON Energy Initiative - Hybrid Electric Drive**

Beginning in FY 2011, this project includes an increment for the DON Energy Initiative related to the DDG 51 Hybrid Electric Drive to reduce DDG 51 Class ship energy consumption and increase mission effectiveness through longer time on station. This project supports propulsion at low ship speeds without the need for LM 2500 main engines. Fuel savings from the Hybrid Electric Drive system will be achieved by utilizing fewer gas turbines for propulsion and ship service power generation while also loading gas turbines at their optimal operating condition. Provides critical foundation for SECNAV and CNO objectives to achieve greater Navy-wide energy security.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<b>Title:</b> Ship Contract Design	8.017	4.864	4.074
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b> For Cruisers, specific efforts include, but are not limited to Technical Data Package development, Detailed Design Products, Engineering Analysis, operational testing, feasibility studies, and topside analysis, related to the next generation Advanced			

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 1803: <i>Ship Contract Design</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
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<p>Capability Build (ACB-12). For DDGs, specific efforts are related to Gun Computing System (GCS) development for the MK 45 interface to a digital MK 116 Gun Computing System.</p> <p><b>FY 2011 Plans:</b> For Cruisers &amp; DDGs, specific efforts include, but are not limited to Technical Data Package development, Detailed Design Products, Engineering Analysis, operational testing, feasibility studies, and topside analysis, related to the next generation Advanced Capability Build (ACB-12). For DDGs, specific efforts are related to Gun Computing System (GCS) development for the MK 45 interface to a digital MK 116 Gun Computing System and next generation MCS software integration.</p> <p><b>FY 2012 Plans:</b> For Cruisers &amp; DDGs, specific efforts include, but are not limited to Technical Data Package development, Detailed Design Products, Engineering Analysis, developmental and operational test event planning, feasibility studies, and topside analysis, related to the next generation Advanced Capability Build. DDG efforts also include next generation MCS software integration.</p>			
<p><b>Title:</b> DON Energy Initiative</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Beginning in FY 2011, this project includes an increment for the DON Energy Initiative related to the DDG 51 Hybrid Electric Drive to reduce DDG 51 Class ship energy consumption and increase mission effectiveness through longer time on station.</p> <p><b>FY 2011 Plans:</b> Source selection and First Article (FA) contract award for detailed design, design review, and Engineering Development Model (EDM) for DDG-51 Class Hybrid Electric Drive.</p> <p><b>FY 2012 Plans:</b> EDM &amp; FA design and manufacturing.</p>	-	13.600 0	14.568 0
<b>Accomplishments/Planned Programs Subtotals</b>	8.017	18.464	18.642

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN 0900: <i>DDG Modernization</i>	159.296	296.691	119.522	0.000	119.522	441.455	346.020	692.153	519.938	Continuing	Continuing
• OPN 0960: <i>CG Modernization</i>	316.711	356.958	590.349	0.000	590.349	594.209	642.274	246.502	245.904	Continuing	Continuing

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 1803: <i>Ship Contract Design</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• WPN 4223: <i>CG Modernization</i>	51.069	52.426	50.013	0.000	50.013	51.496	51.974	27.938	28.754	Continuing	Continuing

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

CG/DDG Modernization:

Aluminum sensitization study to determine the lifetime until sensitization for an aluminum alloys and stress and buckling analysis of the CG 52 Class ship structure and develop proposed fatigue fixes in the high stress areas to produce a technical report with modifications or improvements to the ship that may be necessary to preclude cracking in the areas of concern. Baseline 2 cruiser survivability analysis will develop a CG 52 ship description database (current and modernized designs). Conduct database and Integrated Recoverability Model (IRM) Simulation verification and validation. Conduct IRM runs and analysis for selected threats and hit distributions. Development, integration, and testing of a digital video capability for the MK 34 Gun Weapon System with the Common Display System (CDS) and Common Processing System (CPS) as part of the TI-12/ACB-12 AEGIS Combat System upgrade for Cruiser and Destroyer Modernization programs. This includes integration of an Inertial Measuring Unit into the Electro-Optical Sensor System to compensate for the dynamic motion, providing accurate bearing and elevation data to the MK 160 GCS computing. Additional efforts for DDG Mod include design and development for next generation MCS software integration.

Hybrid Electric Drive (HED) DON Energy Initiative: Successful completion of Engineering Development Model (EDM) and complete fielding of First Article (FA) including contract award, design, manufacturing, and delivery. Successful completion of Factory Acceptance Test (FAT) and performance testing in Land Based Engineering Site (LBES). Commencement, completion, delivery and installation of Low Rate Initial Production (LRIP) units. Achieve fuel efficiency and on-station time.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 1803: <i>Ship Contract Design</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
CG Mod Electronics Systems Eng	C/CPAF	Lockheed:Martin, Moorestown, NJ	16.002	1.411	Feb 2011	-		-		-	Continuing	Continuing	Continuing
DON Energy Initiative	C/CPAF	NSWC/SSES:Philadelphia	-	13.600	Feb 2011	14.580	Dec 2011	-		14.580	Continuing	Continuing	Continuing
<b>Subtotal</b>			16.002	15.011		14.580		-		14.580			

<b>Support (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
DDG/CGM Program / Engineering Spt	WR	NSWC/DD:Dahlgren, VA	4.142	0.560	Feb 2011	0.560	Dec 2011	-		0.560	Continuing	Continuing	Continuing
DDGM Program/ Engineering Spt	Various	SUPSHIP/BATH:Bath, ME	1.279	1.000	Feb 2011	0.884	Dec 2011	-		0.884	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	CSC/BAE:Hampton, VA	5.219	0.300	Feb 2011	0.300	Dec 2011	-		0.300	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	WR	SPAWARSSYSCEN:Charleston, SC	1.333	0.300	Feb 2011	0.300	Dec 2011	-		0.300	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	WR	NRL:Washington, DC	0.663	0.030	Feb 2011	0.030	Dec 2011	-		0.030	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	C/CPAF	JJMA/ALION:Washington, DC	2.500	-		0.825	Dec 2011	-		0.825	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	WR	NSWC/PHD:Port Hueneme, CA	1.825	-		-		-		-	0.000	1.825	
DDG/CGM Program / Engineering Spt	WR	NSWC/BETHESDA:Bethesda, MD	2.799	0.350	Feb 2011	0.350	Dec 2011	-		0.350	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	Various	SUPSHIP/PASCAGOULA:Pascagoula, MS	3.286	0.310	Feb 2011	0.310	Dec 2011	-		0.310	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	WR	COMOPTEVFOR:Norfolk, VA	0.030	-		-		-		-	0.000	0.030	

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 1803: <i>Ship Contract Design</i>

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**Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 1803: <i>Ship Contract Design</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj 1803</i></b>				
CGM Baseline 2 Mod Design	1	2010	4	2012
CGM Baseline 3 Mod Design	1	2011	4	2013
CGM Baseline 4 Mod Design	1	2012	4	2016
DDG Technical Insertion 12 Mod Design	1	2010	4	2012
DDG Technical Insertion 16 Mod Design	1	2012	4	2016
Hybrid Electric Drive Contract Design	1	2011	4	2016
Hybrid Electric Drive Engineering Development Model Contract Award	4	2011	4	2011
Hybrid Electric Drive Engineering Development Model Delivery	3	2013	3	2013
Hybrid Electric Drive Low Rate Initial Production (LRIP)	1	2015	1	2015
CGM Deliveries (CG53,58,54,56,57,55,62,60,59,64,63,65,66,71,67,69,70)	3	2010	2	2016
DDGM Deliveries (DDG53,65,52,51,69,57)	2	2013	2	2016

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy									<b>DATE:</b> February 2011		
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<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2465: <i>LHA(R) FLT Design and Total Ship Integration</i>	8.720	10.383	26.702	-	26.702	29.195	26.892	14.289	3.949	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This project provides the contract design, development and testing efforts for the Amphibious Assault Ship Replacement Program LHA(R). The LHA (R) is a ship construction program designed to: (1) provide a functional replacement for the Amphibious Assault Ships which begin reaching the end of their extended service lives after FY11 (2) be a key platform in the Amphibious Readiness Group (ARG) of the future and (3) provide for an affordable and sustainable amphibious ship development program. LHA(R) ships will provide forward presence and power projection as an integral part of Joint, inter-agency, and multi-national maritime expeditionary forces. Additionally, LHA(R) will be designed to operate for sustained periods in transit to and operations in an Amphibious Objective Area to include the embarkation, deployment, and landing of a Marine Landing Force in an assault by helicopters and tilt rotors (MV-22) supported by Joint Strike Fighters (F-35B).

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b>Title:</b> LHA(R) FLT Design and Total Ship Integration	8.720	10.383	26.702
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b>			
Continued Development Testing and Operational Testing Preparations.			
Continued updating the Test and Evaluation Master Plan (TEMP).			
Continued updating the LFT&E Management Plan.			
Continued revising the Vulnerability Assessment Report (VAR).			
Continued evaluating the interoperability data support Key Performance Parameters (KPP).			
Continued LHA 8 Concept studies including Modeling and Simulation Study for Marine Corps.			
<b>FY 2011 Plans:</b>			
Continue Development Testing and Operational Testing Preparations.			
Complete updating the LFT&E Management Plan.			
Finalize the Initial Vulnerability Assessment Report (VAR).			
Complete updating the Test and Evaluation Master Plan (TEMP).			
Continue evaluating the interoperability data supporting Key Performance Parameters (KPP).			
Begin LHA 8 Trade Studies and Preliminary Design efforts.			
Begin LHA 8 Capability Development Document (CDD) and Concepts of Operations (CONOPS).			
<b>FY 2012 Plans:</b>			

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 2465: <i>LHA(R) FLT Design and Total Ship Integration</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
Continue Development Testing and Operational Testing Preparations. Initiate Final VAR. Continue evaluating the interoperability data support Key Performance Parameters (KPP). Continue LHA 8 Preliminary Design. Continue Capability Development Document (CDD) and Concepts of Operations (CONOPS). Initiate Operational Test and Evaluation. Initiate Total Ship Survivability Trial.			
<b>Accomplishments/Planned Programs Subtotals</b>	8.720	10.383	26.702

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• SCN/3041: <i>LHA(R) Ships</i>	169.476	949.897	2,018.691	0.000	2,018.691	0.000	0.000	130.838	1,639.991	2,627.561	7,536.454
• SCN: <i>LHA 6 - Cost to Complete</i>	0.000	0.000	0.000	0.000	0.000	66.085	0.000	0.000	0.000	0.000	66.085

**D. Acquisition Strategy**

Acquisition strategy signed February 7, 2005 approved strategy for sole source to Northrop Grumman Shipbuilding (NGSB) to incorporate previous LHD engineering, design and producibility lessons-learned into LHA(R). Advanced Procurement (AP) contract for Long Lead-Time Material (LLTM) procurement and engineering support awarded July 05 with continuation of these efforts in FY06 prior to award of Detail Design and Construction (DD&C) contract on 1 June 2007. The Advance Procurement contract was subsumed by the FPI DD&C contract.

USD (AT&L) signed ADM on 31 March 2010 to authorize the Navy to spend Advance Procurement funds for the LHA 7. An Advance Procurement (AP) contract was awarded to Northrop Grumman Shipbuilding (NGSB) on 30 June 2010. RFP for the LHA 7 DD&C contract was issued on 20 July 2010.

**E. Performance Metrics**

Successfully achieve Initial Operational Capability, successfully complete Operational Test and Milestone Reviews.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 2465: <i>LHA(R) FLT Design and Total Ship Integration</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Ship Design	WR	NSWC:Various	88.308	5.274	Dec 2010	4.616	Dec 2011	-		4.616	6.565	104.763	
Ship Design	C/CPFF	NGSB:Pascagoula, MS	4.619	0.200	Feb 2011	0.200	Dec 2011	-		0.200	0.000	5.019	
Ship Design	TBD	TBD:Not Specified	-	-		12.002	Dec 2011	-		12.002	Continuing	Continuing	Continuing
Special Studies	WR	NSWC:Panama City, FL	2.700	-		-		-		-	0.000	2.700	
<b>Subtotal</b>			95.627	5.474		16.818		-		16.818			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	OPTEVFOR/MCOTEA:Norfolk, VA/Quantico, VA	2.903	0.400	Dec 2010	0.290	Dec 2011	-		0.290	1.485	5.078	
Operational Test & Evaluation	WR	OPTEVFOR/MCOTEA:Norfolk, VA/Quantico, VA	5.255	1.700	Dec 2010	1.890	Dec 2011	-		1.890	13.147	21.992	
Live Fire Test & Evaluation	WR	NSWC:Carderock, MD	41.363	2.500	Dec 2010	4.650	Dec 2011	-		4.650	16.931	65.444	
<b>Subtotal</b>			49.521	4.600		6.830		-		6.830	31.563	92.514	

<b>Management Services (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management	C/CPFF	TBD:Washington, DC	7.650	0.259	Dec 2010	2.954	Dec 2011	-		2.954	14.556	25.419	
Travel	Various	Navsea Travel:Washington, DC	0.282	0.050	Mar 2011	0.100	Dec 2011	-		0.100	0.300	0.732	
Defense Acquisition Workforce	Various	Various:Various	0.011	-		-		-		-	0.000	0.011	
<b>Subtotal</b>			7.943	0.309		3.054		-		3.054	14.856	26.162	

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 2465: <i>LHA(R) FLT Design and Total Ship Integration</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 2465: <i>LHA(R) FLT Design and Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2465</b>				
LHA 6 Developmental Testing	1	2010	1	2015
LHA 6 Operational Testing	1	2010	1	2015
LHA 6 Vulnerability Assessment Report (VAR)	1	2010	1	2015
LHA 7 Contract Design	1	2010	4	2014
LHA 8 Capability Development Document (CDD) Update	1	2011	1	2013
LHA 8 Requirements Trade Studies	1	2011	1	2013
LHA 8 Preliminary Design/Concept Design	1	2012	2	2014
LHA 8 Milestone B	2	2014	2	2014
LHA 8 Developmental Testing	2	2014	4	2016
LHA 8 Operational Testing	2	2014	4	2016
LHA 8 Issue AP RFP	3	2014	3	2014

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy									<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>				<b>PROJECT</b> 3108: <i>CVN 80 Total Ship Integration</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3108: <i>CVN 80 Total Ship Integration</i>	-	-	-	-	-	42.961	47.457	47.678	47.052	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Development and related testing of CVN78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 80. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78 or CVN 79. All systems developed in this project have the potential to support emerging requirements and other promising system technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 80 procurement, including, but not limited to engineering support, programmatic and program support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

**B. Accomplishments/Planned Programs (\$ in Millions)**

N/A

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012 Base</u>	<u>FY 2012 OCO</u>	<u>FY 2012 Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 200100: <i>Carrier Replacement Program</i>	1,219.927	2,639.569	497.798	0.000	497.798	1,999.385	2,148.395	3,545.752	2,503.034	Continuing	Continuing
• 0603512N: <i>2208, 4004, 10C098</i>	149.859	83.619	50.235	0.000	50.235	41.495	40.884	41.276	42.041	Continuing	Continuing
• 0603570N: <i>CVN 21 (PU 2692)</i>	82.232	66.643	65.808	0.000	65.808	62.100	57.398	56.409	0.000	Continuing	Continuing

**D. Acquisition Strategy**

The CVN 80 is the third ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class Carriers. The CVN 80 is a modified repeat of the CVN 78, which features a new nuclear propulsion and electrical generation/distribution system, electromagnetic aircraft launching system, advanced arresting gear system, 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 war-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>	<b>PROJECT</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	3108: <i>CVN 80 Total Ship Integration</i>

fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

CVN 80 will use late integration of Government-Furnished Equipment to provide the latest combat system and C4I suite applications within the planned system baseline. CVN 80 will improve upon processes used on CVN 78 to gain efficiencies during the CVN 80 Construction Preparation and Construction periods.

**E. Performance Metrics**

Successfully complete the following tasks:

- system development efforts for designated new and modified shipboard system, including developmental test and evaluation documents.
- design related activities associated with integration of new and modified shipboard systems into the ship, including developmental test and evaluation documentation.
- system design and analysis studies.
- support design integration and analysis.
- support feasibility and tradeoff studies on new and modified shipboard systems, technologies, and proposed modifications. Studies shall include requirements and engineering analysis; identification of subsystem, integration, and logistics impacts; cost estimates; analysis of construction schedule impacts; and conduct/support of shipchecks.
- Manpower Workload Analysis associated with design and policy activities, and with integration of new and modified system/equipment.
- development of multiple Business Case Analyses (BCAs) that demonstrate technology, process, requirements and/or infrastructure improvements that will reduce the manhours (or equivalent material costs) for CVN 80 Construction.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3108: <i>CVN 80 Total Ship Integration</i>

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy								<b>DATE:</b> February 2011			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>				<b>PROJECT</b> 3133: <i>Sea Base to Shore Connectors (Contract Des)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3133: <i>Sea Base to Shore Connectors (Contract Des)</i>	33.853	20.349	2.468	-	2.468	0.882	0.078	3.812	3.632	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Ship to Shore Connector (SSC) - This project provides the Preliminary and Contract design and Class test efforts for the SSC Program. The SSC program provides the capability to rapidly move assault forces within the littoral operational environment to accomplish Unified Command Plan (UCP) missions and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps, and marshes. This project provides for the Systems Development and Demonstration package required for the solicitation for Detail Design and Construction and test of the initial article. Class Test and evaluation of components and systems will also be completed under this project. SSC provides the functional replacement for the LCAC Class of ships, which begin reaching extended service life in 2015. This project also encompasses those tasks required to develop the contract and technical data package necessary to support the procurement of the lead SSC craft, including, but not limited to engineering support, programmatic and program support, logistics support, manpower and program related studies. The lead craft is funded in RDT&E under this PE, Project 3137.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b>Title:</b> Sea Base to Shore Connectors (Contract Des)	33.853	20.349	2.468
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b> Completed development and implementation of initiatives in preparation for the award of the Detail Design and Construction Contract in FY11. Continued Class Test and Evaluation program. Developed contracts data package for the test and training craft award in FY11.			
<b>FY 2011 Plans:</b> Award Detail Design and Construction Contract for lead craft. Continuation of Class Test and Evaluation program. Complete Preliminary/Contract Design			
<b>FY 2012 Plans:</b> Continuation of Class Test and Evaluation program.			
<b>Accomplishments/Planned Programs Subtotals</b>	33.853	20.349	2.468

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3133: <i>Sea Base to Shore Connectors (Contract Des)</i>

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>			<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• RDT&E 0604567N: <i>SSC Detail Design/Construction</i>	0.000	80.463	92.466	0.000	92.466	81.085	27.789	3.314	3.102	Continuing	Continuing
• SCN 5112: <i>SSC Construction</i>	0.000	0.000	0.000	0.000	0.000	0.000	76.358	130.880	290.235	Continuing	Continuing

**D. Acquisition Strategy**

The lead craft will be procured and constructed with RDT&E funds. The lead craft Detail Design contract will include an option for construction.

**E. Performance Metrics**

Begin Test and Evaluation Master Plan (TEMP) updates. Begin Developmental Testing Phase B and Operational Testing Phase B.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3133: <i>Sea Base to Shore Connectors (Contract Des)</i>
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<b>Product Development (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Design	C/CPFF	CSC:Washington, DC	8.975	5.355	Oct 2010	-		-		-	0.000	14.330	
Preliminary/Contract Design	C/FP	Various:Various	31.140	-		-		-		-	0.000	31.140	
System Engineering	Various	Various:Various	6.241	-		-		-		-	0.000	6.241	
<b>Subtotal</b>			46.356	5.355		-		-		-	0.000	51.711	

<b>Support (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Support	WR	NSWC PCD:Panama City, FL	4.244	0.392	Oct 2010	-		-		-	0.000	4.636	
Software Development	C/FP	Various:Various	2.219	-		-		-		-	0.000	2.219	
Integrated Logistics Support	WR	NSWC:Various	1.692	1.673	Oct 2010	-		-		-	0.000	3.365	
Studies & Analyses	TBD	Various:Various	3.619	2.489	Nov 2010	0.154	Oct 2011	-		0.154	Continuing	Continuing	Continuing
<b>Subtotal</b>			11.774	4.554		0.154		-		0.154			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various:Various	0.033	-		-		-		-	0.000	0.033	
Operational Test & Evaluation	Various	Various:Various	1.118	0.483	Oct 2010	0.393	Oct 2011	-		0.393	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	Various	Various:Various	2.153	1.681	Oct 2010	1.237	Oct 2011	-		1.237	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.304	2.164		1.630		-		1.630			

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3133: <i>Sea Base to Shore Connectors (Contract Des)</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3133: <i>Sea Base to Shore Connectors (Contract Des)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3133</b>				
Capability Development Document (CDD)	1	2010	3	2010
Preliminary Design/Contract Design (PD/CD)	1	2010	3	2010
Preliminary Design Reviews (PDR)	1	2010	2	2011
Development Test/Operational Test A (DT/OT-A)	1	2010	3	2011
T&E Program Development	1	2010	2	2014
Live Fire Test & Evaluation (LFT&E) Mgmt Plan	1	2010	4	2014
Survivability/Vulnerability Assessment Report (SAR/VAR)	1	2010	4	2016
Defense Acquisition Board (DAB) Reviews	2	2011	4	2016
Early Operational Assessment (EOA)	1	2011	1	2011
Detail Design & Construction (DD&C) Award	4	2011	4	2011
Acquisition Milestone B	4	2011	4	2011
Development Test/Operational Test B (DT/OT-B)	1	2012	2	2015
Critical Design Review (CDR)	3	2013	3	2013
Capabilities Production Document (CPD)	4	2013	4	2014
Operational Assessment (OA)	4	2014	4	2014
Low Rate Initial Production (LRIP) Approval	1	2015	1	2015
Acquisition Milestone C	1	2015	1	2015
Development Test/Operational Test C (DT/OT-C)	4	2015	4	2016

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3137: <i>SSC Construction</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
3137: <i>SSC Construction</i>	-	80.463	92.466	-	92.466	81.085	27.789	3.314	3.102	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This project funds the Ship to Shore Connector (SSC) Engineering & Manufacturing Development phase which includes Detail Design and Construction of the Test and Training Craft, Integrated Logistics Support (ILS), Government Furnished Equipment (GFE), Program support, and Outfitting and Post Delivery. The SSC program provides the capability to rapidly move assault forces within the littoral operational environment to accomplish Unified Command Plan (UCP) missions, and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. The lead craft will be maintained as a test and training platform throughout its life cycle. The SSC program provides the functional replacement for the LCAC Class of ships, which begin reaching extended service life in 2015.

Plans:

TOTAL 42.7 (FY12 18.1)

Basic Construction:

TOTAL 174.4 (FY12 45.4)

Change Orders:

TOTAL 9.3 (FY12 3.4)

Electronics

TOTAL 0.2 (FY12 0.1)

HME:

TOTAL 19.3 (FY12 9.1)

OTHER SUPPORT:

TOTAL 41.1 (FY12 16.4)

POST DELIVERY/OUTFITTING:

TOTAL 1.2 (FY12 0.0)

Ship Total:

TOTAL 288.2(FY12 92.5)

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<b>Title:</b> SSC Construction	-	80.463	92.466
<b>Articles:</b>		1	0

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3137: <i>SSC Construction</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
<p><b><i>FY 2011 Plans:</i></b> Begin Detail Design and Construction efforts for test and training craft, including but not limited software development, construction, startup and procurement of Contractor Furnished Equipment (CFE) material. Completion of Milestone B.</p> <p><b><i>FY 2012 Plans:</i></b> Continue Detail Design and Construction efforts for test and training craft, including but not limited software development, construction, startup and procurement of Contractor Furnished Equipment (CFE) material</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	-	80.463	92.466

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• RDT&E 0604567N: <i>RDT&amp;E</i>	33.853	20.349	2.468	0.000	2.468	0.882	0.078	3.812	3.632	Continuing	Continuing
• SCN 5112: <i>SSC Construction</i>	0.000	0.000	0.000	0.000	0.000	0.000	76.358	130.880	290.235	Continuing	Continuing

**D. Acquisition Strategy**

The test and training craft will be procured and constructed with RDT&E funds. The test and training craft Detail Design and Construction contract will include an option for construction of follow crafts to be procured with SCN funds.

**E. Performance Metrics**

Award Detail Design and Construction contract for Test and Training Craft with options for follow SCN crafts.  
Deliver Test and Training Craft.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3137: <i>SSC Construction</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Ship Design	C/CPFF	CSC:Washington, DC	-	1.785	May 2011	7.070	Oct 2011	-		7.070	Continuing	Continuing	Continuing
Test & Trng Craft Detail Design	C/FPIF	TBD:TBD	-	24.600	Aug 2011	18.100	Oct 2011	-		18.100	Continuing	Continuing	Continuing
Test & Trng Craft Construction	C/FPIF	TBD:TBD	-	45.204	Aug 2011	45.420	Oct 2011	-		45.420	Continuing	Continuing	Continuing
Government Furnished Equipment (GFE)	C/FPIF	TBD:TBD	-	0.100	Aug 2011	0.100	Oct 2011	-		0.100	Continuing	Continuing	Continuing
Change Orders	C/FPIF	TBD:TBD	-	0.600	Aug 2011	3.400	Oct 2011	-		3.400	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	72.289		74.090		-		74.090			

<b>Support (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Integrated Logistics Support	WR	NSWC:Various	-	0.332	Jul 2011	2.970	Oct 2011	-		2.970	Continuing	Continuing	Continuing
Studies and Analysis	TBD	Various:Various	-	5.030	Jul 2011	5.779	Oct 2011	-		5.779	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	5.362		8.749		-		8.749			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Craft Construction Test Program	Various	Various:Various	-	0.161	Aug 2011	1.957	Oct 2011	-		1.957	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	0.161		1.957		-		1.957			

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3137: <i>SSC Construction</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3137: <i>SSC Construction</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj 3137</i></b>				
Defense Acquisition Board (DAB) Reviews	2	2011	4	2016
Test and Training Craft Detail Design	4	2011	4	2013
Acquisition Milestone B	4	2011	4	2011
Critical Design Review (CDR)	3	2013	3	2013
Production Readiness Review #1 (PRR)	3	2013	3	2013
Capabilities Production Document (CPD)	4	2013	4	2014
Test and Training Craft Construction	4	2013	4	2016
Low Rate Initial Production (LRIP) Approval	1	2015	1	2015
Production Readiness Review #2 (PRR)	1	2015	1	2015
Acquisition Milestone C	1	2015	1	2015
Test and Training Craft Delivery	4	2016	4	2016

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy								<b>DATE:</b> February 2011			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>				<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3179: <i>CVN-79 Total Ship Integration</i>	35.723	21.324	19.176	-	19.176	14.697	14.804	15.141	15.415	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Development and related testing of CVN 78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 79. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 79 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b>Title:</b> CVN-79 Total Ship Integration	35.723	21.324	19.176
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b> Plans include further NGSB-NN development and submission of Business Cost Analysis (BCA) of items such as Aircraft Elevator Hoist redesign, navigation displays, side loading of arresting gear, valves, Advanced Weapons Elevator shock events, pipe testing, deletion of Captain's Gig, main turbine generator refurbishment, deletion of SPN-46, development of a shock machine sand standardized shock enclosures, and utilization of ship's storage to reduce the cost of CVN 79. In addition, the program is executing CVN 78 Class shock, vibration and Electromagnetic Interference (EMI) analysis, obsolescence analysis, and Human System Integration (HSI) efforts.			
<b>FY 2011 Plans:</b> Plans include further NGSB-NN development and submission of BCA items to reduce CVN 79 acquisition cost. Further development and implementation of previous and new items yet to be determined will occur during the fiscal year. Some of the efforts that are being considered include, but are not limited to, Tandem Arc Welding, Machinery Control & Monitoring System reduction, Final Assembly Platen rolling roof covers, Steel Fabrication nesting improvements, Cable Pulling process enhancements, Pipe Shop consolidation, Sea Chest produce ability, other spare circuit breaker reductions, and Weapons			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
Elevator door redesign. Additionally, ongoing efforts will be continued, including CVN 78 Class shock, vibration and EMI analysis, obsolescence analysis, and HSI.			
<b><i>FY 2012 Plans:</i></b> Plans include further NGSB-NN development and submission of BCA items to reduce CVN 79 acquisition cost. Further development and implementation of previous and new items yet to be determined will occur during the fiscal year. Additionally, the continuation of on-going efforts, including CVN 78 Class shock, vibration and EMI analysis, obsolescence analysis, and HSI are planned.			
<b>Accomplishments/Planned Programs Subtotals</b>	35.723	21.324	19.176

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2012</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• 0605312N: <i>2208, 4004, 10C098</i>	149.859	83.619	50.235	0.000	50.235	41.495	40.884	41.276	42.041	Continuing	Continuing
• 0603570N: <i>CVN 21 (PU 2692)</i>	82.232	666.643	65.808	0.000	65.808	62.100	57.398	56.409	0.000	Continuing	Continuing
• 200100: <i>Carrier Replacement Program</i>	1,219.927	2,639.569	497.798	0.000	497.798	1,999.385	2,148.395	3,545.752	2,503.034	Continuing	Continuing

**D. Acquisition Strategy**

The CVN 80 is the third ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class Carriers. CVN 79 is a modified repeat of the CVN 78, which features the new nuclear propulsion and electrical generation / distribution system, electromagnetic aircraft launch system, advanced arresting gear system, 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 war fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability / flexibility, increased operational availability, and increased flexibility to support future upgrades. CVN 79 will use late integration of Government-Furnished Equipment to provide the latest combat system and C4I suite applications within the planned system baseline. CVN 79 will improve upon processes used on CVN 78 to gain efficiencies during the CVN 79 Construction Preparation and Construction periods.

**E. Performance Metrics**

Successfully complete system development efforts for designated new and modified shipboard system, including developmental test and evaluation documents. Successfully complete design related activities associated with integration of new and modified shipboard systems into the ship, including developmental test and evaluation documentation. Successfully perform system design and analysis studies. Successfully support design integration and analysis. Successfully complete

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>
<p>or support feasibility and tradeoff studies on new and modified shipboard systems, technologies, and proposed modifications. Studies shall include requirements and engineering analysis; identification of subsystem, integration, and logistics impacts; cost estimates; analysis of construction schedule impacts; and conduct/ support of shipchecks. Successfully provide Manpower Workload Analysis associated with design and policy activities, and with integration of new and modified system/equipment. Successfully complete the development of multiple Business Case Analyses (BCAs) that demonstrate technology, process, requirements and/or infrastructure improvements that will reduce the manhours (or equivalent material costs) for CVN 79 Construction.</p>		

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Total Ship Integration	C/CPAF	NGSB-NN:VA	50.007	16.155	Dec 2010	12.347	Dec 2011	-		12.347	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC Carderock:MD	9.466	0.027	Oct 2010	1.091	Oct 2011	-		1.091	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC Dahlgren:VA	7.023	0.501	Oct 2010	1.052	Oct 2011	-		1.052	Continuing	Continuing	Continuing
Total Ship Integration	WR	NAWCAD Pax River:MD	2.455	0.259	Oct 2010	0.892	Oct 2011	-		0.892	Continuing	Continuing	Continuing
Total Ship Integration	WR	SPAWAR:SD	2.706	-	Oct 2010	0.496	Oct 2011	-		0.496	Continuing	Continuing	Continuing
Total Ship Integration	C/CPFF	NAVSEA SEAPORT:DC	12.539	3.466	Nov 2010	1.323	Nov 2011	-		1.323	Continuing	Continuing	Continuing
Total Ship Integration	C/CPAF	Raytheon:MA	3.862	0.666	Dec 2010	1.558	Dec 2011	-		1.558	Continuing	Continuing	Continuing
Total Ship Integration	WR	SSC Charleston:SC	0.233	-		-		-		-	Continuing	Continuing	Continuing
Total Ship Integration	C/CPFF	SAIC:VA	1.445	-		-		-		-	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC Carderock:MD	4.341	0.250	Oct 2010	0.236	Oct 2011	-		0.236	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NUWC Newport:RI	0.123	-		-		-		-	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR:VA	-	-		0.181	Oct 2011	-		0.181	Continuing	Continuing	Continuing
<b>Subtotal</b>			94.200	21.324		19.176		-		19.176			

<b>Management Services (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Defense Acquisition Workforce	Various	Various:Mis	0.181	-		-		-		-	0.000	0.181	
<b>Subtotal</b>			0.181	-		-		-		-	0.000	0.181	

	<b>Total Prior Years Cost</b>	<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>		94.381	21.324		19.176		-	19.176			

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3179</b>				
CVN 79 DAB PR	1	2012	1	2012
Propulsion Plant	1	2010	4	2016
EMALS SDD Complete	3	2012	3	2012
Advanced Arresting Gear (AAG) TRR 1 (IT)	1	2010	1	2010
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	3	2011	3	2011
Integrated Test 1 (IT-1)	1	2010	4	2014
Integrated Test 2 (IT-2)	4	2014	3	2016
Integrated Test 3 (IT-3)	3	2016	4	2016
Operational Assessment Report 1 (IT-1)	2	2012	2	2012
Operational Assessment Report 2 (IT-1)	2	2013	2	2013
Developmental Test Report (IT-1)	1	2015	1	2015
Operational Assessment Report 3 (IT-1)	1	2015	1	2015
Developmental Test Report (IT-2)	4	2016	4	2016
Operational Assessment Report (IT-2)	4	2016	4	2016
Assessment of Operational Test Readiness - Phase C1 (AOTRC1)	4	2016	4	2016
Operational Test Readiness Review - Phase C1 (OTRRC1)	4	2016	4	2016
CVN 80 IPPD Contract Award	1	2013	1	2013
CVN 79 Construction Contract Award	1	2013	1	2013
CVN 80 CP Contract Award	1	2016	1	2016
CVN 78 Ship Delivery	4	2015	4	2015

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 3179: <i>CVN-79 Total Ship Integration</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CVN 79 SCN Full Funding	1	2013	4	2016

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 4007: <i>CVN 21 LFT&amp;E</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
4007: <i>CVN 21 LFT&amp;E</i>	2.271	2.703	1.645	-	1.645	1.177	1.172	1.197	1.219	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This project encompasses Live Fire Test and Evaluation (LFT&E) efforts for the CVN 78 Class. Title 10, US Code, Section 2366, CVN 21 Operational Requirements Document (ORD) and the CVN 21 Test and Evaluation Master Plan (TEMP), prescribe requirements for LFT&E. The purpose of LFT&E is to evaluate weapons and weapons systems in a realistic combat environment and to identify any mission threatening vulnerabilities early in the development process when there is time to take corrective action. The CVN 21 LFT&E Management Plan details the efforts, through testing and engineering analyses, to address potential design vulnerabilities.

The unit cost of the CVN 78 Class and its shipboard systems preclude consideration of destructive testing of a full-up CVN 78 Class hull with threats of the type that might be expected in combat. Consequently, the Navy must rely on other means to determine that CVN 78 Class ships 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 Vulnerability Assessment Report (VAR) is the key document that addresses these issues for the CVN 78 LFT&E Program.

The LFT&E strategy for the CVN 78 Class accounts for the uncertainty in its design features. The strategy assumes that as the program progresses through the stages of ship design, prior to the award of the construction contract, descriptive detail of CVN 78 will increase and so will the ability to evaluate its survivability. The VAR 3 was officially completed in the summer of 2007. The VAR 3 Update is scheduled to be completed in FY 12 and will incorporate the CVN 78 design drawings.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<b>Title:</b> CVN 21 LFT&E	2.271	2.703	1.645
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b> Continued developing CVN 78 Class Management Plan Revision B. Continued VAR 4 efforts with susceptibility modeling and simulation (M&S) and development of a CVN 78 model for the Ship Vulnerability Model (SVM). Completed analyses of Dynamic System Mechanics Advanced Simulation (DYSMAS) Verification, Validation and Accreditation (VV&A). Continued susceptibility modeling of new and emerging threats. Conducted Live Fire Test and Evaluation (LFT&E) surrogate tests of selected CVN 78 survivability features.			
<b>FY 2011 Plans:</b> Complete development of CVN 78 Class Management Plan Revision B and route for signature. Complete development of a CVN 78 model in SVM for VAR 4 efforts. Begin the Damage Based Engineering Analyses (DSBEA) for VAR 4. Complete documentation of DYSMAS VV&A and submit for accreditation. Complete susceptibility modeling for shotlines to be used in			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 4007: <i>CVN 21 LFT&amp;E</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
VAR 4/DSBEA effort. Perform analyses with Fire and Smoke Simulator (FSSIM) for DSBEA. Conduct LFT&E surrogate tests of selected CVN 78 survivability features.			
<b><i>FY 2012 Plans:</i></b> Continue SVM analyses and DSBEA's for VAR 4. Begin writing sections for VAR 4. Complete surrogate tests and documentation of selected CVN 78 survivability features. Commence update of LFT&E Management Plan by specifically addressing any changes to strategy for CVN 79 / CVN 80.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.271	2.703	1.645

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 200100: <i>Carrier Replacement Program</i>	1,219.927	2,639.569	497.798	0.000	497.798	1,999.385	2,148.395	3,545.752	2,503.034	Continuing	Continuing
• 0603570N: <i>CVN 21 (PU 2692)</i>	82.232	66.643	65.808	0.000	65.808	62.100	57.398	56.409	0.000	Continuing	Continuing
• 0603512N: <i>2208, 4004, 10C098</i>	149.859	83.619	50.235	0.000	50.235	41.495	40.884	41.276	42.041	Continuing	Continuing

**D. Acquisition Strategy**

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 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 war fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

**E. Performance Metrics**

Successfully complete CVN 78 fire test effort in support of magazine fire protection system, AFFF system and EMALS trough fire protection. Complete update of the LFT&E Management Plan from Rev A to Rev B. Successfully complete LFT&E surrogate test to any new and emerging threats identified by ONI.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 4007: <i>CVN 21 LFT&amp;E</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 4007: <i>CVN 21 LFT&amp;E</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4007</b>				
CVN 79 DAB PR	1	2012	1	2012
Propulsion Plant	1	2010	4	2016
EMALS SDD Complete	3	2012	3	2012
Advanced Arresting Gear (AAG) TRR 1 (IT)	1	2010	1	2010
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	3	2011	3	2011
Integrated Test 1 (IT-1)	1	2010	4	2014
Integrated Test 2 (IT-2)	4	2014	3	2016
Integrated Test 3 (IT-3)	3	2016	4	2016
Operational Assessment Report 1 (IT-1)	2	2012	2	2012
Operational Assessment Report 2 (IT-1)	3	2013	3	2013
Developmental Test Report (IT-1)	1	2015	1	2015
Operational Assessment Report 3 (IT-1)	1	2015	1	2015
Developmental Test Report (IT-2)	4	2016	4	2016
Operational Assessment Report (IT-2)	4	2016	4	2016
Assessment of Operational Test Readiness - Phase C1 (AOTRC1)	4	2016	4	2016
Operational Test Readiness Review - Phase C1 (OTRRC1)	4	2016	4	2016
CVN 80 IPPD Contract Award	1	2013	1	2013
CVN 79 Construction Contract Award	1	2013	1	2013
CVN 80 CP Contract Award	1	2016	1	2016
CVN 78 Ship Delivery	4	2015	4	2015

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>PROJECT</b> 4007: <i>CVN 21 LFT&amp;E</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CVN 79 SCN Full Funding	1	2013	4	2016

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>					<b>PROJECT</b>			
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>			PE 0604567N: <i>Ship Contract Design/ Live Fire T&amp;E</i>					9999: <i>Congressional Adds</i>			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	3.187	-	-	-	-	-	-	-	-	0.000	3.187
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Congressional add

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2010	FY 2011
<b>Congressional Add:</b> Automated Fiber Optic Manufacturing Initiative	1.992	-
<b>FY 2010 Accomplishments:</b> Continued to address the issue of field installation, field repair, and maintenance by extracting the technologies of the automated manufacturing line and inserting these technologies and process in small, portable, maintenance equipment that could be used by ship construction and ship's force personnel.		
<b>Congressional Add:</b> Landing Craft Composite Lift Fan	1.195	-
<b>FY 2010 Accomplishments:</b> Continue design, development and manufacturing of two sets of prototype composite material lift fans for application on current and next generation Navy landing craft vessels. This initiative will continue to address the ongoing problem the Navy has been experiencing with current generation metal lift fan blades that have to be replaced periodically through the year at a cost of approximately \$1.4M per year. This technology will extend the life of landing craft lift fans, reducing failures, maintenance and life cycle costs.		
<b>Congressional Adds Subtotals</b>	3.187	-

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**D. Acquisition Strategy**

Congressional add

**E. Performance Metrics**

Congressional add

