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**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	912.268	52.878	60.791	22.462	-	22.462	27.543	10.618	9.320	9.199	Continuing	Continuing
1803: <i>Ship Contract Design</i>	146.915	3.009	2.837	3.112	-	3.112	3.938	3.605	3.664	3.470	Continuing	Continuing
2465: <i>LHA(R) FLT Design and Total Ship Integration</i>	280.843	7.306	12.237	19.350	-	19.350	23.605	7.013	5.656	5.729	Continuing	Continuing
3108: <i>CVN 80 Total Ship Integration</i>	138.305	24.094	26.311	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	188.710
3179: <i>CVN-79 Total Ship Integration</i>	260.905	14.331	15.418	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	290.654
4007: <i>CVN 21 LFT&amp;E</i>	85.300	4.138	3.988	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	93.426

**Program MDAP/MAIS Code:**  
**Project MDAP/MAIS Code(s):** 333, 223

**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 / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>
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CVN 78 Class efforts consisting of Project Units 3179, 3108 and 4007 were moved to PE 0604112N / Project Unit 2208 in FY 2024 and later, enabling Major Defense Acquisition Program (MDAP) transparency of the CVN 78 Class.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	54.829	60.791	58.149	-	58.149
Current President's Budget	52.878	60.791	22.462	-	22.462
Total Adjustments	-1.951	0.000	-35.687	-	-35.687
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.951	0.000			
• Program Adjustments	0.000	0.000	-36.250	-	-36.250
• Rate/Misc Adjustments	0.000	0.000	0.563	-	0.563

**Change Summary Explanation**

FY 24 PROJ PU 1803: Reduced (-\$1.2M) due to Program Adjustments

FY 24 PROJ PU 2465: Increased (+\$13.5M) for LHA 8 testing efforts and reduced (-\$1M) due to Program Adjustments; Net adjustment (+12.5M)

FY 24 PROJ PU 3108/3179/4007: Transfer from PE 0604567N in FY 2024 and later to PE 0604112N PU 2208 (-\$40.1M)

FY 24 PROJ PU 3108/3179/4007: Program Adjustments (-\$6.9M)

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 1803 / Ship Contract Design
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1803: <i>Ship Contract Design</i>	146.915	3.009	2.837	3.112	-	3.112	3.938	3.605	3.664	3.470	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

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.

Expeditionary Sea Base (ESB) (formerly MLP AFSB)

Prior year funding included the performance specification development and Dynamic Interface Testing for various airframes as part of the ESB Special Operations Forces (SOF) Backfit.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<b>Title:</b> Ship Contract Design	3.009	2.837	3.112	0.000	3.112
<b>Articles:</b>	-	-	-	-	-
<b><i>FY 2023 Plans:</i></b>					
Continue ship design and alteration development for service life extension and Hull Mechanical & Electrical (HM&E) network upgrades in CG 47 and for DDG 51 Flt IIA ship design to include development of structural reliability and other alterations to include machinery control systems improvements in FY 2023.					
<b><i>FY 2024 Base Plans:</i></b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 1803 / Ship Contract Design

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
DDG 51 Flt IIA ship design to include continued development of structural reliability and other alterations to include machinery control systems improvements in FY 2024. Funding will support continued research and development efforts associated with DDGM 2.0 and back-fit of SPY-6(v)4 on the DDG-51 Class. Funds will also support continued lab upgrades for HM&E systems associated with DDGM.					
<b>FY 2024 OCO Plans:</b> N/A					
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Developing DDG MOD 2.0 and Engineering Lab for FLT 3.					
<b>Accomplishments/Planned Programs Subtotals</b>	3.009	2.837	3.112	0.000	3.112

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN 0900: DDG Mod	535.667	744.341	628.532	-	628.532	927.280	855.780	942.398	958.412	9,631.876	19,383.298
• OPN 0960: CG Mod	138.926	59.054	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3,936.983

**Remarks**

<b>D. Acquisition Strategy</b>
Continuing systems and software development for both development models and production machinery control units at Land Based Engineering Sites.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E				1803 / Ship Contract Design							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CG Mod Electronics Systems Eng	C/CPAF	Lockheed : Martin, Moorestown, NJ	17.413	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DON Energy Initiative - OEM	C/FPIF	L-3 Maritime Systems : Leesburg, VA	34.857	0.000		0.000		0.000		-		0.000	0.000	34.857	-
DON Energy Initiative	WR	NSWC/SSES : Philadelphia, PA	3.629	0.000		0.000		0.000		-		0.000	0.000	3.629	-
Engineering Development and Design	Various	COTF/NAVAIR/NSWCDD/NSWCPC/NSWCPC/NSWCSSSES : DC/MD/PA/CA	1.085	0.000		0.000		0.000		-		0.000	0.000	1.085	-
Preliminary and Contract Design	C/FPIF	NASSCO : San Diego, CA	6.500	0.000		0.000		0.000		-		0.000	0.000	6.500	-
Hybrid Electric Drive	C/CPIF	L-3 Maritime Systems : Leesburg, VA	6.911	0.000		0.000		0.000		-		0.000	0.000	6.911	-
Hybrid Electric Drive	C/CPAF	Rolls Royce : Walpole, MA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Hybrid Electric Drive	C/CR	General Atomics : San Diego, CA	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	-
Hybrid Electric Drive	C/CPAF	Herren Engineering : Alexandria, VA	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	-
Hybrid Electric Drive	C/CPAF	Syntek : Arlington, VA	0.099	0.000		0.000		0.000		-		0.000	0.000	0.099	-
Hybrid Electric Drive	WR	NSWC/SSES : Philadelphia, PA	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	-
Hybrid Electric Drive	Various	Not Specified : Not Specified	8.500	0.000		0.000		0.000		-		0.000	0.000	8.500	-
<b>Subtotal</b>			80.484	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E					1803 / Ship Contract Design						
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG/CGM Program / Engineering Spt	WR	NSWC/DD : Dahlgren, VA	4.376	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM Program/ Engineering Spt	Various	SUPSHIP/BATH : Bath, ME	3.331	0.000		0.000		1.900	May 2024	-		1.900	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	CSC/BAE : Hampton, VA	4.713	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	WR	SPAWARSYSCEN : Charleston, SC	2.004	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	WR	NRL : Washington, DC	0.617	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	C/CPAF	JJMA/ALION : Washington, DC	2.947	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	Lockheed Martin : Moorestown, NJ	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
DDG/CGM Program / Engineering Spt	WR	NSWC/PHD : Port Hueneme, CA	2.889	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	CSC : Washington DC	0.085	0.000		0.000		0.000		-		0.000	0.000	0.085	-
CGM/DDG Program / Engineering Spt	WR	COMPTEVFOR : Norfolk, VA	0.420	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM/HED Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	4.900	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	7.316	0.605	Jan 2022	0.437	Jan 2023	1.212	May 2024	-		1.212	0.000	9.570	-
HED Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
HED	C/CPAF	L-3 Maritime Systems : Leesburg, VA	1.048	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CG Program / Engineering Spt	WR	NSWC/BETHESDA : Bethesda, MD	11.193	0.223	Jan 2022	0.291	Jan 2023	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E				1803 / Ship Contract Design							
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CG Program / Engineering Spt	Various	SUPSHIP/ PASCAGOULA : Pascagoula, MS	5.635	0.308	Jun 2022	0.434	Jun 2023	0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPFF	John Hopkins University : Laurel, MD	2.355	0.351	Apr 2022	0.428	Apr 2023	0.000		-		0.000	0.000	3.134	-
ESB	Various	Various : Various	5.276	0.000		0.000		0.000		-		0.000	0.000	5.276	-
NAVSEA Boundary Defense Capability	Various	Various : Various	1.995	0.000		0.000		0.000		-		0.000	0.000	1.995	-
CG Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	4.831	1.522	Jan 2022	1.247	Jan 2023	0.000		-		0.000	0.000	7.600	-
<b>Subtotal</b>			66.431	3.009		2.837		3.112		-		3.112	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			146.915	3.009		2.837		3.112		-		3.112	Continuing	Continuing	N/A
<b>Remarks</b>															
DDG 51 Flt IIA ship design to include continued development of structural reliability and other alterations to include machinery control systems improvements in FY 2024. Funding will support continued research and development efforts associated with DDGM 2.0 and back-fit of SPY-6(v)4 on the DDG-51 Class. Funds will also support continued lab upgrades for HM&E systems associated with DDGM. Engineering Support NSWC Philadelphia (1.212M) and BIW - DDGM Program /Engineering Support for (1.9M) with a 3rd qtr award.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 1803 / <i>Ship Contract Design</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<b>Proj 1803</b>	
Ship Contract Design: CGM Baseline 4 Mod Design	
Ship Contract Design: CG Class Design	
Ship Contract Design: DDG Technical Insertion 16 Mod Design	
Ship Contract Design: DDG FLT IIA Mod Design	
Ship Contract Design: CG Deliveries (CG 59,61,62,63-73)	
Ship Contract Design: DDGM Deliveries (DDG 61,80,81,84,87)	
Ship Contract Design: DDG Class Design	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 1803 / <i>Ship Contract Design</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 1803</b>				
Ship Contract Design: CGM Baseline 4 Mod Design	1	2022	4	2024
Ship Contract Design: CG Class Design	1	2022	4	2027
Ship Contract Design: DDG Technical Insertion 16 Mod Design	1	2022	4	2023
Ship Contract Design: DDG FLT IIA Mod Design	1	2022	2	2024
Ship Contract Design: CG Deliveries (CG 59,61,62,63-73)	1	2022	4	2023
Ship Contract Design: DDGM Deliveries (DDG 61,80,81,84,87)	1	2022	3	2023
Ship Contract Design: DDG Class Design	1	2022	4	2028

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<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E				<b>Project (Number/Name)</b> 2465 / LHA(R) FLT Design and Total Ship Integration			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2465: LHA(R) FLT Design and Total Ship Integration	280.843	7.306	12.237	19.350	-	19.350	23.605	7.013	5.656	5.729	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
<b>Project MDAP/MAIS Code:</b> 333												

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

This project provides the contract design, development, and testing efforts for the Amphibious Assault Ship General Purpose 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 reached the end of their extended service lives (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 with landing craft, 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 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<b>Title:</b> LHA (R) FLT 0 Design and Total Ship Integration - LHA 6	1.487	0.060	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b> Complete the report for the LHA 6 JSF/F-35B capacity Key Performance Parameter (KPP) Follow-On Test and Evaluation (FOT&E) event.					
<b>FY 2024 Base Plans:</b> N/A					
<b>FY 2024 OCO Plans:</b> N/A					
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> There are no further LHA 6 test events or activities scheduled after FY 2023.					
<b>Title:</b> LHA (R) FLT 1 Design and Total Ship Integration - LHA 8	5.819	12.177	19.350	0.000	19.350
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b>					

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<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 2465 / <i>LHA(R) FLT Design and Total Ship Integration</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
LHA 8 Initiate Enterprise Air Search Radar (EASR)/AN-SPY-6(V)2 Defensive Capability Study LHA 8 Initiate Close-In Weapons System (CIWS)-Rolling Air Frame Missile (RAM) Block 1 Integration Study LHA 8 Initiate Ship Self Defense System (SSDS)/AN-SPY-6(V) 2 Defensive Capability Study LHA 8 Complete Landing Spot 9 Night Illumination evaluation LHA 8 Continue research and systems engineering for replacing Fuel at Sea (FAS) equipment no longer obtainable LHA 8 Continue Dynamic Interface-Virtual Environment (DIVE) Modeling and Simulation LHA 8 Continue Reliability, Maintainability, and Availability (RM&A) analyses LHA 8 Continue development of the Vulnerability Assessment Report (VAR) LHA 8 Continue Operational Test & Evaluation (OT&E) preparation for Operational Assessment LHA 8 Continue Cyber Security Developmental Test & Evaluation (DT&E) efforts LHA 8 Continue Live Fire Test & Evaluation (LFT&E) efforts  <b><i>FY 2024 Base Plans:</i></b> LHA 8 Initiate Lead Ship Operational Test (OT) Campaign (Air Warfare Ship Self Defense) Test and Evaluation (T&E) events LHA 8 Continue research and systems engineering for replacing FAS equipment no longer obtainable LHA 8 Continue DIVE Modeling and Simulation LHA 8 Continue RM&A analyses LHA 8 Continue development of the VAR LHA 8 Continue OT&E preparation for Operational Assessment. LHA 8 Continue Cyber Security DT&E efforts LHA 8 Continue LFT&E efforts  <b><i>FY 2024 OCO Plans:</i></b> N/A  <b><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i></b> FY 2023 to FY 2024 increase reflects the additional funds required to initiate Lead Ship OT Campaign (Air Warfare Ship Self Defense) T&E events.					
<b>Accomplishments/Planned Programs Subtotals</b>	7.306	12.237	19.350	0.000	19.350

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 2465 / <i>LHA(R) FLT Design and Total Ship Integration</i>

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

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• SCN/3041: <i>LHA (R) Ships</i>	68.637	1,393.770	1,830.149	-	1,830.149	150.218	367.400	3,479.047	0.000	0.000	18,405.554

**Remarks**

**D. Acquisition Strategy**

LHA 6 Advance Procurement (AP) and Long Lead Time Material (LLTM) was awarded on a sole source basis to Huntington Ingalls Inc., formerly Northrop Grumman Shipbuilding, on 15 July 2005; LHA 6 Detail Design and Construction (DD&C) was awarded on 1 June 2007. The AP and LLTM efforts were subsumed by the Fixed Price Incentive, Firm Target DD&C contract.

LHA 7 AP and LLTM was awarded on a sole source basis to Huntington Ingalls Inc., formerly Northrop Grumman Shipbuilding, on 30 June 2010; LHA 7 DD&C was awarded on 31 May 2012. The AP and LLTM efforts were subsumed by the Fixed Price Incentive, Firm Target DD&C contract.

LHA 8 Planning, Advanced Engineering and Procurement of LLTM for an LHA Replacement (LHA(R)) Flight 1 Amphibious Assault Ship was awarded on a competitive basis to Huntington Ingalls Inc. on 30 June 2016. The option for LHA 8 DD&C contract was awarded on 16 June 2017. The Planning, Advanced Engineering and Procurement of LLTM efforts were subsumed into this Fixed Price Incentive, Firm Target DD&C contract option.

LHA 9 Planning, Advanced Engineering and Procurement of LLTM was awarded on a sole source basis to Huntington Ingalls Inc. on 30 April 2020; the DD&C contract option was awarded on 27 October 2022 and subsumed the AP and LLTM efforts into this Fixed Price Incentive, Firm Target DD&C contract option.

The 2023 Appropriations Act added \$289M AP funds in support of the procurement of LHA 10 - a FY 2027 ship.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 2465 / LHA(R) FLT Design and Total Ship Integration
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ship Design	WR	NSWC : Various	97.905	0.000		0.000		0.000		-		0.000	0.000	97.905	-
Ship Design	C/CPFF	HII : Pascagoula, MS	5.009	0.000		0.000		0.000		-		0.000	0.000	5.009	-
Ship Design	C/CPFF	Various : Various	44.087	0.000		0.000		0.000		-		0.000	0.000	44.087	-
Special Studies	WR	NSWC : Panama City, FL	4.800	0.000		0.000		0.000		-		0.000	0.000	4.800	-
<b>Subtotal</b>			151.801	0.000		0.000		0.000		-		0.000	0.000	151.801	N/A

<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Engineering Services	Various	NSWC : Various	11.958	2.262	Dec 2021	8.387	Dec 2022	5.750	Dec 2023	-		5.750	Continuing	Continuing	Continuing
<b>Subtotal</b>			11.958	2.262		8.387		5.750		-		5.750	Continuing	Continuing	N/A

**Remarks**  
The increase from FY 2022 to FY 2023 supports engineering efforts to replace the obsolete FAS system and funds efforts to illuminate Landing Spot 9 for Joint Strike Fighter (JSF) F-35B unaided night landings.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (DT&E)	Various	NSWC, USS Secure : Various	5.677	1.858	Dec 2021	2.034	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	Various : Various	24.237	1.926	Dec 2021	0.437	Dec 2022	13.500	Dec 2023	-		13.500	Continuing	Continuing	Continuing
Live Fire Test & Evaluation (LFT&E)	WR	NSWC : Various	69.894	1.175	Dec 2021	1.286	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			99.808	4.959		3.757		13.500		-		13.500	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 2465 / LHA(R) FLT Design and Total Ship Integration
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
FY 2023 to FY 2024 increase reflects the additional funds required to initiate Lead Ship OT Campaign (Air Warfare Ship Self Defense) T&E events. OT&E and FOT&E combined onto one line item.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	C/CPFF	Various : Various	16.502	0.085	Dec 2021	0.093	Dec 2022	0.100	Dec 2023	-		0.100	Continuing	Continuing	Continuing
Travel	Various	NAVSEA Travel : Washington, DC	0.763	0.000		0.000		0.000		-		0.000	0.000	0.763	-
Defense Acquisition Workforce	Various	Various : Various	0.011	0.000		0.000		0.000		-		0.000	0.000	0.011	-
<b>Subtotal</b>			17.276	0.085		0.093		0.100		-		0.100	Continuing	Continuing	N/A

			Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			280.843	7.306		12.237		19.350		-		19.350	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Navy</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 2465 / LHA(R) FLT Design and Total Ship Integration

## LHA Replacement Design and Total Ship Integration

FY	QTR	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Milestones	LHA8			RIVD Below Deck	EASR Above Deck	RIVD Above Deck	EASR Launch							BT	Ship Delivery			PDT&T					PSA	OWLD					
	LHA9			LHA 9 DD&C Award																									
	LHA10							LHA 10 LLTM Award																					
Test & Evaluation	LHA 6 OT&E																												
	LHA 8 Operational Test and Assessment Efforts																												
	LHA 8 Live Fire Test and Evaluation (Including VAR)																												
	LHA 8 RMA																												
	LHA 8 Developmental Testing and Evaluation Efforts																												
	Dynamic Interface Virtual Environment M&S Development																												
	Dynamic Interface Testing																												
	LHA 8 Cyber Security (Table Tops, USS Secure, CVAST)																												
	Fuel at Sea (FAS) Obsolescence																												
	Landing Spot 9 Night Illumination																												
Lead Ship Campaign Test Events																													
Capability Studies																													
Contracts (SCN)				LHA 9 DD&C Award				LHA 10 LLTM Award																					

DD&C - Detail Design and Construction	EASR - Enterprise Air Search Radar	FOT&E - Follow-on Operational Test and Evaluation	OWLD - Obligation Work Limiting Date
PSA - Post Shakedown Availability	PDT&T - Post Delivery Test and Trials	AP - Advanced Procurement	LFT&E - Live Fire Test and Evaluation
RIVD - Required In-Yard Date	RMA - Reliability, Maintainability, Availability	RFP - Request for Proposals	VAR - Vulnerability Assessment Report

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</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 (R) FLT Design and Total Ship Integration	1	2022	4	2028

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E				<b>Project (Number/Name)</b> 3108 / CVN 80 Total Ship Integration			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3108: CVN 80 Total Ship Integration	138.305	24.094	26.311	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	188.710
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Project MDAP/MAIS Code:** 223

**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 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.

This PU's efforts moved to PE 0604112N PU 2208 for FY 2024 and later.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<b>Title:</b> Enterprise Radar Suite (ERS)/ Warfare Systems Development and Integration	3.828	3.635	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b> Continue to conduct ship integration studies for GFI vetting, tracking and delivery. Continue conducting onboard and offboard EMI / EMC studies due to new the radar sensor suite. Continue analyzing / performing integrated topside design due to the new radar sensor suite and systems associated with Joint Strike Fighter (JSF) capabilities. Continue ERS integration testing with the combat system. Continue conducting system integration studies related to the Test and Evaluation Master Plan (TEMP); platform impacts & updates to Test and Evaluation Master Plan (TEMP); cybersecurity analysis. Continue conducting RMA and ILS studies, to include trade studies and identification of investment opportunities / requirements. Continue preparing / updating					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy			<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 3108 / <i>CVN 80 Total Ship Integration</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
acquisition support documents and cost estimates. Continue operation of the Integrated Product Team to include vendor, shipbuilder and Government.					
<b>FY 2024 Base Plans:</b> N/A					
<b>FY 2024 OCO Plans:</b> N/A					
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2024 and later efforts moved to PE 0604112N PU 2208.					
<b>Title:</b> CVN 78 Class Design for Affordability (DFA) and Systems Integration					
<b>Articles:</b>					
	20.266	22.676	0.000	0.000	0.000
	-	-	-	-	-
<b>FY 2023 Plans:</b> Continue conducting and supporting feasibility and tradeoff studies on new and modified shipboard systems and equipment. Identify and resolve Government Furnished Equipment and Contractor Furnished Equipment obsolescence issues to support construction. Continue to technically resolve CVN 78 class system integration issues in support of CVN 80 and CVN 81 construction. Continue development of cost saving initiatives, business case analyses, and DFA initiatives to continue to drive affordability into the carrier program. Continue performing CVN 80-specific engineering calculations and technical analysis in the areas of technical performance measures; system component calculations; environmental safety and health, and human factors engineering; survivability and vulnerability; automation systems software; shock and vibration; and engineered components support. Support Integrated Enterprise Plan (IEP) initiatives including Affordability Process Improvement (API) initiatives, industrial base deep-dives, and cost reduction initiatives to support CVN 80 and CVN 81 construction.					
<b>FY 2024 Base Plans:</b> N/A					
<b>FY 2024 OCO Plans:</b> N/A					
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2024 and later efforts moved to PE 0604112N PU 2208.					
<b>Accomplishments/Planned Programs Subtotals</b>					
	24.094	26.311	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 3108 / <i>CVN 80 Total Ship Integration</i>

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2024</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• RD TEN / 0604112N: <i>Project Units 2208, 4004, 9999</i>	117.878	116.498	118.182	-	118.182	78.504	95.504	106.139	55.900	Continuing	Continuing
• SCN / 2001: <i>Carrier Replacement Program</i>	1,062.205	1,465.880	1,115.296	-	1,115.296	2,416.717	1,159.211	1,842.376	2,119.562	Continuing	Continuing
• SCN / 2004: <i>CVN 81</i>	1,287.719	1,052.024	800.492	-	800.492	666.045	1,922.144	2,011.766	1,724.982	0.000	12,929.104
• SCN / 5300: <i>Completion of PR Shpblgd Progr</i>	291.000	461.700	624.600	-	624.600	0.000	0.000	0.000	0.000	0.000	1,377.300
• OPN / 5664: <i>Surface Training Equipment</i>	2.475	2.468	2.430	-	2.430	2.497	2.664	2.722	2.780	Continuing	Continuing
• OMN / 1B2B: <i>CVN 78 Ford Class Training and Sustainment</i>	5.176	5.601	6.064	-	6.064	6.167	6.245	6.281	6.253	Continuing	Continuing
• OMN / 1B5B: <i>Ford Class PCU Housing</i>	1.100	11.818	15.587	-	15.587	5.100	0.800	10.600	10.812	Continuing	Continuing

**Remarks**

**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-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 (GFE) 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 and CVN 79 to gain efficiencies during the CVN 80 Construction Preparation and Construction periods.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 3108 / CVN 80 Total Ship Integration
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Advanced Design & Development	C/CPAF	HII : VA	70.820	10.342	Nov 2021	8.000	Nov 2022	0.000		-		0.000	0.000	89.162	-
Advanced Design & Development	C/CPFF	GRYPHON (SEI&T) : IN	5.537	0.000		2.500	Nov 2022	0.000		-		0.000	0.000	8.037	-
Advanced Design & Development	WR	NSWC DAHLGREN : VA	12.074	3.552	Nov 2021	2.500	Nov 2022	0.000		-		0.000	0.000	18.126	-
Advanced Design & Development	WR	NSWC CARDEROCK : MD	6.652	1.500	Nov 2021	1.500	Nov 2022	0.000		-		0.000	0.000	9.652	-
Advanced Design & Development	WR	NSWC PHILADELPHIA : PA	3.701	1.300	Nov 2021	2.000	Nov 2022	0.000		-		0.000	0.000	7.001	-
Advanced Design & Development	C/CPFF	NAVSEA SEAPORT : VARIOUS	19.930	3.000	Nov 2021	3.000	Nov 2022	0.000		-		0.000	0.000	25.930	-
Advanced Design & Development	C/BA	NAWCAD PAX RIVER : MD	5.563	1.000	Nov 2021	1.000	Nov 2022	0.000		-		0.000	0.000	7.563	-
Advanced Design & Development	WR	SPAWAR : VARIOUS	3.047	0.900	Nov 2021	0.900	Nov 2022	0.000		-		0.000	0.000	4.847	-
Advanced Design & Development	Various	NSRP : VARIOUS	2.505	1.500	Nov 2021	1.500	Nov 2022	0.000		-		0.000	0.000	5.505	-
Advanced Design & Development	Various	MISCELLANEOUS : VARIOUS	8.164	1.000	Nov 2021	3.411	Nov 2022	0.000		-		0.000	0.000	12.575	-
Prior Year AD&D No Longer Funded in the FYDP	Various	VARIOUS : VARIOUS	0.312	0.000		0.000		0.000		-		0.000	0.000	0.312	-
<b>Subtotal</b>			138.305	24.094		26.311		0.000		-		0.000	0.000	188.710	N/A

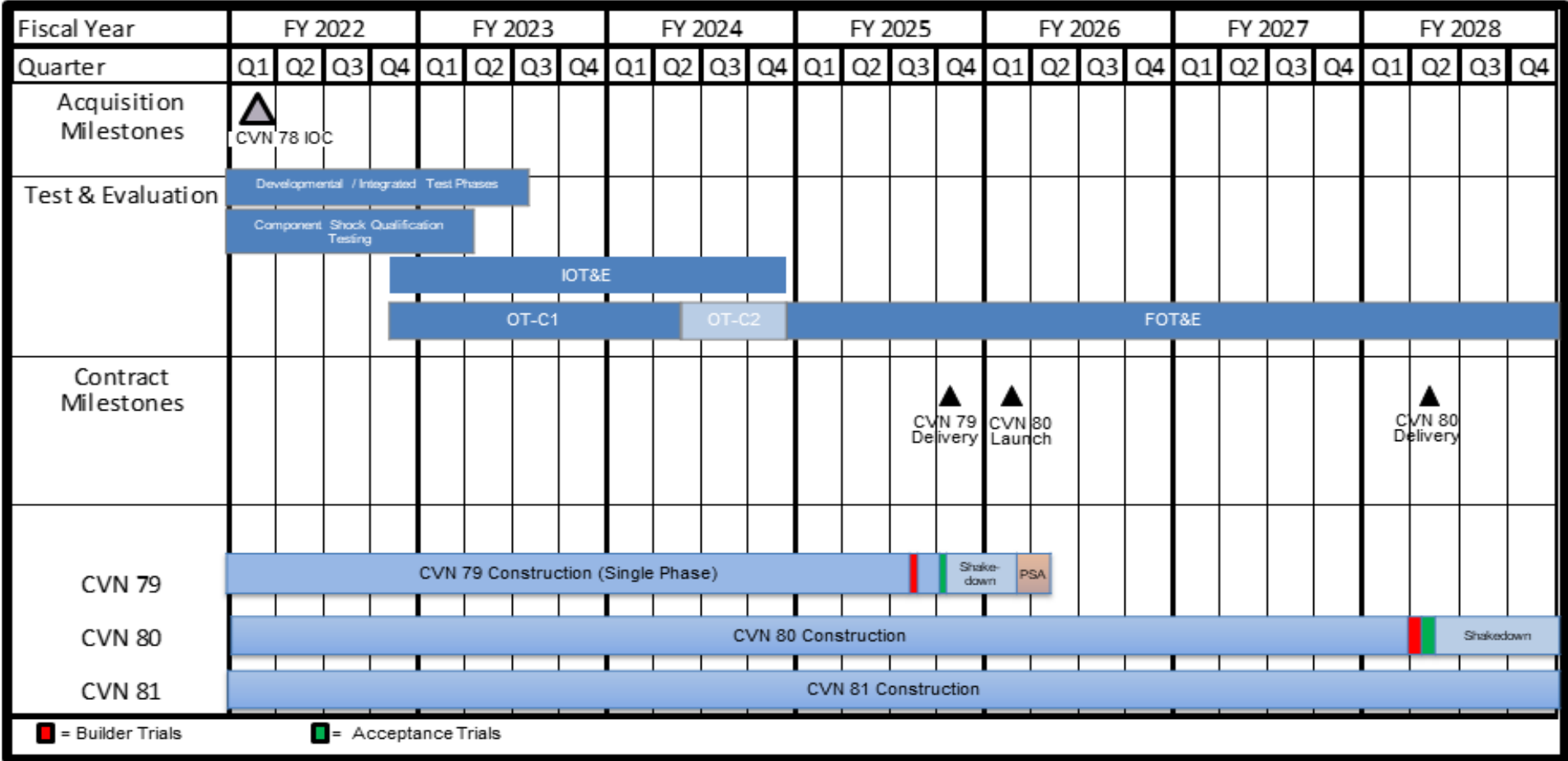
	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	138.305	24.094	26.311	0.000	-	0.000	0.000	188.710	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Navy</b>		<b>Date: March 2023</b>
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 3108 / CVN 80 Total Ship Integration

**Gerald R. Ford Class Carriers**



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 3108 / <i>CVN 80 Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3108</b>				
CVN 80 Total Ship Integration	1	2022	4	2028

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 3179 / CVN-79 Total Ship Integration
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3179: CVN-79 Total Ship Integration	260.905	14.331	15.418	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	290.654
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Project MDAP/MAIS Code:** 223

**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. In addition, this project focuses on significant procurement and life cycle cost reduction compared to the first ship of the class. Cost reductions are sought, developed and implemented in the areas of design, labor and material.

This PU's efforts moved to PE 0604112N PU 2208 for FY 2024 and later.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<b>Title:</b> CVN-79 Total Ship Integration	14.331	15.418	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b> Perform technical analysis and calculations in support of validating Technical Performance Measures (TPMs), System/Component, Environmental Safety and Health Qualification, and Human Factors Engineering, Ship/ System/Component Survivability and Vulnerability Qualification, System/Component Shock and Vibration Qualification, and other miscellaneous system related calculations. Manage fact-of-life obsolescence changes on government-furnished equipment systems, challenges encountered on contractor-furnished equipment and material analysis. Refine system integration and testing strategies for implementation on CVN 79 testing including lessons learned on CVN 78. Continue to develop and implement a tailored Integrated Test Plan for					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 3179 / <i>CVN-79 Total Ship Integration</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
CVN 79 and CVN 80 leveraging the Submarine Integration and Test Support System (SIATSS) used by Virginia Class Submarine program to manage Alteration Installation Team (AIT) - conducted testing.  <b>FY 2024 Base Plans:</b> N/A  <b>FY 2024 OCO Plans:</b> N/A  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2024 and later efforts moved to PE 0604112N PU 2208.					
<b>Accomplishments/Planned Programs Subtotals</b>	14.331	15.418	0.000	0.000	0.000

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

<b>Line Item</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RD TEN / 0604112N: <i>Project Units 2208, 4004, 9999</i>	117.878	116.498	118.182	-	118.182	78.504	95.504	106.139	55.900	Continuing	Continuing
• SCN / 2001: <i>Carrier Replacement Program</i>	1,062.205	1,465.880	1,115.296	-	1,115.296	2,416.717	1,159.211	1,842.376	2,119.562	Continuing	Continuing
• SCN / 2004: <i>CVN 81</i>	1,287.719	1,052.024	800.492	-	800.492	666.045	1,922.144	2,011.766	1,724.982	0.000	12,929.104
• SCN / 5300: <i>Completion of PY Shpblgdg Progr</i>	291.000	461.700	624.600	-	624.600	0.000	0.000	0.000	0.000	0.000	1,377.300
• OPN / 5664: <i>Surface Training Equipment</i>	2.475	2.468	2.430	-	2.430	2.497	2.664	2.722	2.780	Continuing	Continuing
• OMN / 1B2B: <i>CVN 78 Ford Class Training and Sustainment</i>	5.176	5.601	6.064	-	6.064	6.167	6.245	6.281	6.253	Continuing	Continuing
• OMN / 1B5B: <i>Ford Class PCU Housing</i>	1.100	11.818	15.587	-	15.587	5.100	0.800	10.600	10.812	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The CVN 78 is 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 class will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system (EMALS), advanced arresting gear (AAG)

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 3179 / <i>CVN-79 Total Ship Integration</i>

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.

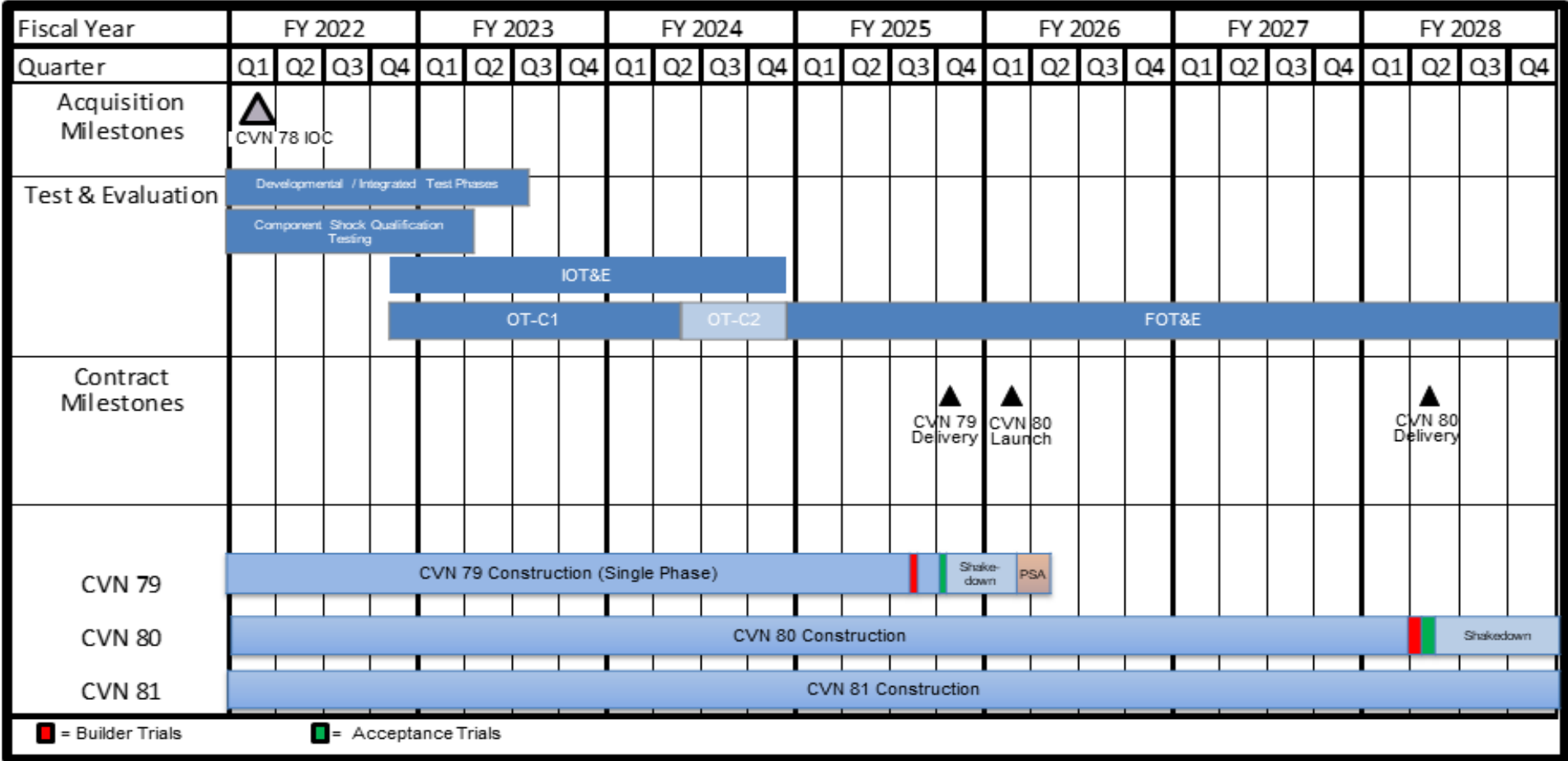
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E				3179 / CVN-79 Total Ship Integration								
<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Total Ship Integration	C/CPAF	HII : VA	122.605	13.331	Nov 2021	15.418	Nov 2022	0.000		-		0.000	0.000	151.354	-	
Total Ship Integration	MIPR	NIST : Various	0.000	1.000	Nov 2021	0.000		0.000		-		0.000	0.000	1.000	-	
Prior Year Total Ship Integration No Longer Funded in the FYDP	Various	VARIOUS : VARIOUS	129.279	0.000		0.000		0.000		-		0.000	0.000	129.279	-	
<b>Subtotal</b>			251.884	14.331		15.418		0.000		-		0.000	0.000	281.633	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	VARIOUS : VARIOUS	8.840	0.000		0.000		0.000		-		0.000	0.000	8.840	-	
<b>Subtotal</b>			8.840	0.000		0.000		0.000		-		0.000	0.000	8.840	N/A	
<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Prior Year Management Services No Longer Funded in the FYDP	Various	VARIOUS : VARIOUS	0.181	0.000		0.000		0.000		-		0.000	0.000	0.181	-	
<b>Subtotal</b>			0.181	0.000		0.000		0.000		-		0.000	0.000	0.181	N/A	
<b>Project Cost Totals</b>			260.905	14.331		15.418		0.000		-		0.000	0.000	290.654	N/A	
<b>Remarks</b>																

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Navy</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 3179 / CVN-79 Total Ship Integration

**Gerald R. Ford Class Carriers**



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</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 Total Ship Integration	1	2022	4	2028

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 4007 / CVN 21 LFT&E
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4007: CVN 21 LFT&E	85.300	4.138	3.988	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	93.426
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Project MDAP/MAIS Code:** 223

**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 78 Class Test and Evaluation Master Plan (TEMP) 1610 prescribe requirements for LFT&E. The purpose of LFT&E is to evaluate covered systems in a realistic combat environment before proceeding beyond low-rate initial production. Since the application of the survivability testing required by 10 USC 2366 to a CVN 78 Class ship would be unreasonably expensive and impractical, the Secretary of Defense waived the live fire testing requirement in 2004 and submitted a certification of that determination to Congress. The CVN 78 Class LFT&E Management Plan details the testing, modeling and simulation, and engineering analyses that are being used to determine whether CVN 78 Class ships will be able to survive and carry out their missions against the threat weapons identified in the Surface Ship Capstone System Threat Assessment Report (CSTAR) that are likely to be encountered in combat. The results of these tests and analyses are documented in periodic Vulnerability Assessment Reports (VARs).

The CVN 78 Class VAR 3 was completed in the summer of 2007 and the CVN 78 Class VAR 4 is scheduled to be completed in FY 2018.

This PU's efforts moved to PE 0604112N PU 2208 for FY 2024 and later.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<b>Title:</b> CVN 21 LFT&E	4.138	3.988	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b>					
Execute the CVN 78 Total Ship Survivability Trial (TSST) with continued maturation of the TSST drill guides and implementation sheets. Complete procurement of materials for execution of the TSST to include smoke machines, smoke, Uninterruptible Power Supply (UPS) batteries, etc. Complete cold checks of CVN 78 systems in support of TSST planning. Execute Hot Checks a few months prior to execution. Continue survivability modeling improvements, analyses and documentation for the final Selected Acquisition Report (SAR).					
<b>FY 2024 Base Plans:</b>					
N/A					
<b>FY 2024 OCO Plans:</b>					

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 4007 / CVN 21 LFT&E
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
N/A					
<b><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i></b> FY 2024 and later efforts moved to PE 0604112N PU 2208.					
<b>Accomplishments/Planned Programs Subtotals</b>	4.138	3.988	0.000	0.000	0.000

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

<b>Line Item</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RD TEN / 0604112N: <i>Project Units 2208, 4004, 9999</i>	117.878	116.498	118.182	-	118.182	78.504	95.504	106.139	55.900	Continuing	Continuing
• SCN / 2001: <i>Carrier Replacement Program</i>	1,062.205	1,465.880	1,115.296	-	1,115.296	2,416.717	1,159.211	1,842.376	2,119.562	Continuing	Continuing
• SCN / 2004: <i>CVN 81</i>	1,287.719	1,052.024	800.492	-	800.492	666.045	1,922.144	2,011.766	1,724.982	0.000	12,929.104
• SCN / 5300: <i>Completion of PY Shpblgdg Progr</i>	291.000	461.700	624.600	-	624.600	0.000	0.000	0.000	0.000	0.000	1,377.300
• OPN / 5664: <i>Surface Training Equipment</i>	2.475	2.468	2.430	-	2.430	2.497	2.664	2.722	2.780	Continuing	Continuing
• OMN / 1B2B: <i>CVN 78 Ford Class Training and Sustainment</i>	5.176	5.601	6.064	-	6.064	6.167	6.245	6.281	6.253	Continuing	Continuing
• OMN / 1B5B: <i>Ford Class PCU Housing</i>	1.100	11.818	15.587	-	15.587	5.100	0.800	10.600	10.812	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The CVN 78 is 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 (EMALS), advanced arresting gear (AAG) 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.

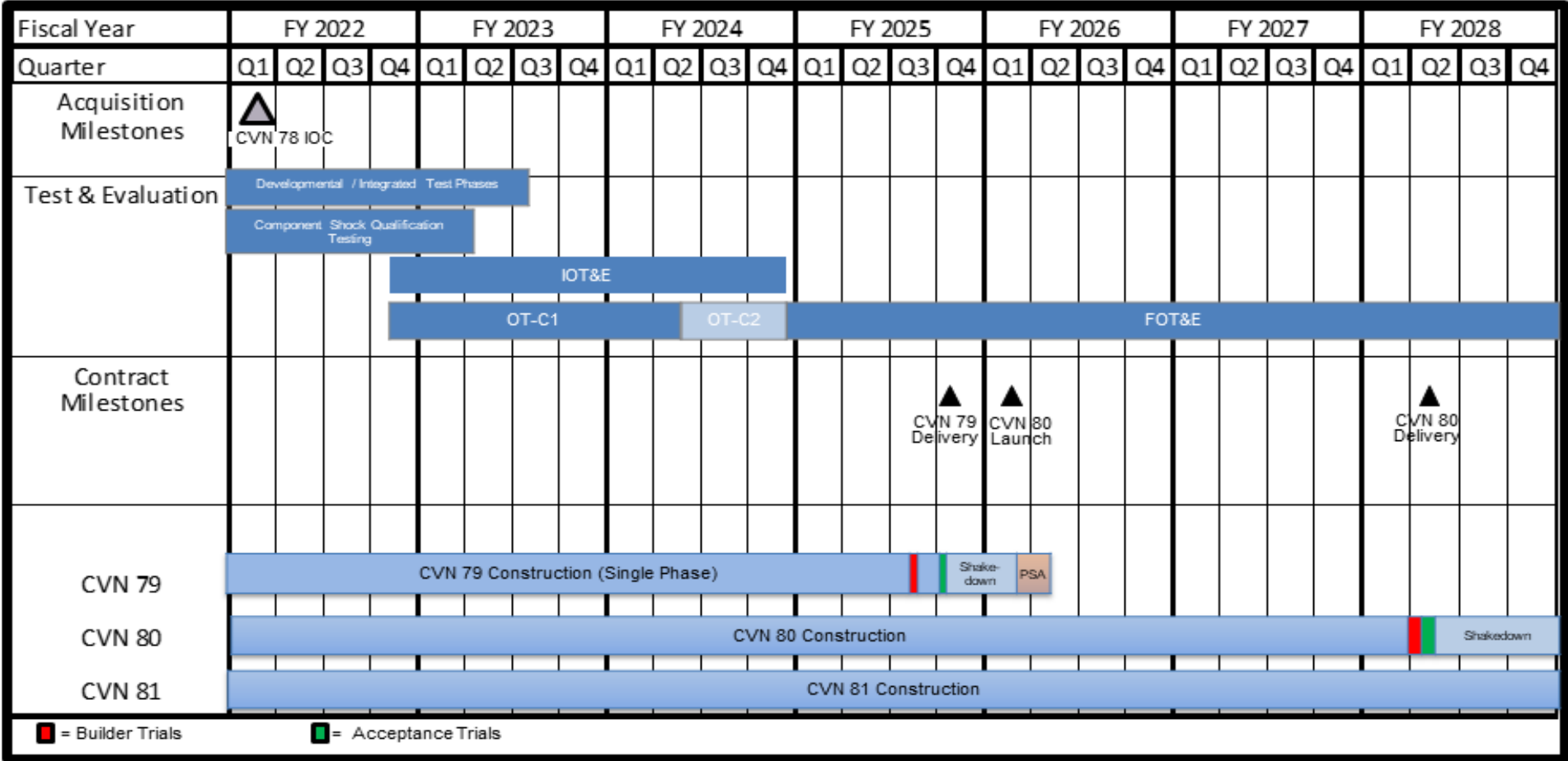
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E				4007 / CVN 21 LFT&E							
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation (LFT&E)	WR	NSWC Carderock : MD	70.923	3.251	Nov 2021	2.276	Nov 2022	0.000		-		0.000	0.000	76.450	-
Live Fire Test & Evaluation (LFT&E)	C/CPAF	HII : VA	13.239	0.887	Nov 2021	0.750	Nov 2022	0.000		-		0.000	0.000	14.876	-
Live Fire Test & Evaluation (LFT&E)	WR	NSWC Dahlgren : VA	0.834	0.000		0.426	Nov 2022	0.000		-		0.000	0.000	1.260	-
Live Fire Test & Evaluation (LFT&E)	WR	NAWCAD PAX RIVER : MD	0.093	0.000		0.233	Oct 2022	0.000		-		0.000	0.000	0.326	-
Live Fire Test & Evaluation (LFT&E)	WR	NSWC Philadelphia : PA	0.000	0.000		0.303	Oct 2022	0.000		-		0.000	0.000	0.303	-
Prior Year Live Fire Test & Evaluation Not Funded FYDP (PYLFT&E)	Various	VARIOUS : VARIOUS	0.201	0.000		0.000		0.000		-		0.000	0.000	0.201	-
<b>Subtotal</b>			85.290	4.138		3.988		0.000		-		0.000	0.000	93.416	N/A
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Management Services No Longer Funded in the FYDP	Various	VARIOUS : VARIOUS	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
<b>Subtotal</b>			0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	N/A
<b>Project Cost Totals</b>			85.300	4.138		3.988		0.000		-		0.000	0.000	93.426	N/A
<b>Remarks</b>															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Navy</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / Ship Contract Design/ Live Fire T&E	<b>Project (Number/Name)</b> 4007 / CVN 21 LFT&E

**Gerald R. Ford Class Carriers**



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604567N / <i>Ship Contract Design/ Live Fire T&amp;E</i>	<b>Project (Number/Name)</b> 4007 / CVN 21 LFT&E

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4007</b>				
CVN 21 LFT&E	1	2022	4	2028