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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	57.070	45.398	40.774	75.327	-	75.327	119.213	50.475	44.541	44.809	Continuing	Continuing
0409: <i>DDG-51 Flt III Concept Development</i>	0.000	5.196	6.184	6.107	-	6.107	10.447	4.824	1.365	1.328	Continuing	Continuing
0411: <i>DDG(X) Concept Development</i>	0.000	12.439	8.519	49.745	-	49.745	97.453	42.093	39.685	40.078	Continuing	Continuing
3389: <i>OPLOG IPT Development</i>	57.070	17.763	21.071	19.475	-	19.475	11.313	3.558	3.491	3.403	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	10.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	15.000

**Program MDAP/MAIS Code:**  
**Project MDAP/MAIS Code(s):** 180

**Note**

Project 3389 prior years includes \$11.319M FY 2018 funding financed under this PE project 9999/C404 (Congressional add).

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

0409 - This project provides Test and Evaluation (T&E) requirements for DDG-51 Flight III to meet Initial Operational Capability (IOC) in FY 2024. T&E will concentrate on verifying integration and interoperability of employed technologies and systems in the DDG-51 FLT III design to achieve the mission capabilities and performance requirements as defined in the DDG-51 Flight III Capability Development Document (CDD). T&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP). Funding planned is for the execution of Developmental Testing (DT), Operational Testing (OT), and Live Fire Test and Evaluation (LFT&E).

0411 - The Navy's DDG(X) program is the Navy's Future Guided Missile Destroyer ship acquisition program to follow the DDG 51 class that is essential to field capabilities required for the future fight as validated by the Future Surface Combatant Force (FSCF) ICD, FSCF AoA, and Future Naval Force Study (FNFS). DDG(X) will integrate non-developmental systems into a new hull design that incorporates platform flexibility and the space, weight, power and cooling (SWAP-C) to meet future combatant force capability/system requirements that are not achievable without the new hull design. The DDG(X) platform will have the flexibility to rapidly and affordably upgrade to future warfighting systems when they become available as well as have improved range and fuel efficiency for increased operational flexibility and decreased demand on the logistics force. DDG(X) will provide an Integrated Power System (IPS) with flexibility to enable fielding of high demand electric weapons, sensor systems and computing resources. To decouple ship development risk from technology risk, accommodation of additional future capabilities will be pre-planned; these future capabilities may include: missile launchers capable of larger weapons to exceed adversary capabilities, high power lasers, or other systems that can be efficiently incorporated when developed and demonstrated.

3389 - Naval Operational Logistics (OPLOG) Integration IPT Development - Develops enabling technologies for future and in-service afloat operational logistics and integrated supply force and combatant logistics requirements; and conducts cooperative initiatives with acquisition programs, program sponsors, engineering managers,

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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>
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the Navy science and technology community and Fleet customers. OPLOG develops integrated, cross-platform (i.e. applicable to more than one ship class/type) operational logistics and energy conservation technologies and capabilities as well as draft acquisition and operations policy ensuring future Naval systems leverage emerging logistic capabilities and technologies to provide operationally effective and energy efficient logistics delivery.

C651- Congressional Add for the Ship Control System (SCS) and Bridge Integration to support bridge design configuration analysis, modernization, and standardization. This will directly contribute to national security by improved capabilities to ship and treat the bridge as a single combat system warfighting environment, enhancing operational availability and readiness and increasing lethality. In addition, leveraging modeling and simulation methods and data synthesis will assist in the early identification of future mishaps leading to increased fleet operational readiness and a reduction in unexpected maintenance costs.

C754 - Congressional Add for the Preliminary Ship Design of Next-Gen Hospital Ship - The T-AH(X) Hospital ship program will recapitalize aging Role 3 medical services ships. The primary mission of these ships is to provide rapid, flexible, and mobile acute health services support to military personnel deployed ashore and afloat with a secondary mission of providing mobile surgical hospital service and acute medical care for disaster or humanitarian relief. USNS MERCY class ships will retire from service beginning in FY 2036, after over 60 years of service. Conduct of a Requirements Evaluation Team for development of Top Level Requirements and performance of initial ship feasibility studies is planned.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	46.657	106.957	0.000	-	0.000
Current President's Budget	45.398	40.774	75.327	-	75.327
Total Adjustments	-1.259	-66.183	75.327	-	75.327
• Congressional General Reductions	-	-0.013			
• Congressional Directed Reductions	-	-71.170			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.259	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	75.327	-	75.327

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

**Project:** 9999: *Congressional Adds*

Congressional Add: *Bridge Integration Program*

Congressional Add: *Preliminary ship design of next-gen hospital ship*

	<b>FY 2021</b>	<b>FY 2022</b>
Congressional Add: <i>Bridge Integration Program</i>	10.000	0.000
Congressional Add: <i>Preliminary ship design of next-gen hospital ship</i>	0.000	5.000

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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>
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<b>Congressional Add Details (\$ in Millions, and Includes General Reductions)</b>	<b>FY 2021</b>	<b>FY 2022</b>
Congressional Add Subtotals for Project: 9999	10.000	5.000
Congressional Add Totals for all Projects	10.000	5.000

**Change Summary Explanation**

The FY 2023 funding request was reduced by \$5.214 million to account for the availability of prior year execution balances.

Project 0409: Decrease of \$0.077M from FY 2022 to FY 2023 aligns with plan of the Cooperative Vulnerability Identification and Adversarial Cybersecurity DT Event in FY 2023.

Project 0411: Increase of \$41.226 from FY 2022 to FY 2023 represents the transition to a full year of Preliminary Design activities vice the partial year in FY 2022 with the associated increased support program resource requirements for the collaborative Navy/industry team to completing execute preliminary design phase activities and ensure the program stays on schedule to begin Contract Design in FY 2024.

Proj 3389: Decrease of \$1.596 million from FY 2022 to FY 2023 due to completion of majority of CONSOL adapter kit prototypes and subscale SPDS fabrication.

Project C651: Congressional increase for Ship Control Systems and Bridge Integration.

Project C754: Congressional increase for Preliminary Ship Design of Next-Gen Hospital Ship.

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FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0409 / <i>DDG-51 Flt III Concept Development</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0409: <i>DDG-51 Flt III Concept Development</i>	0.000	5.196	6.184	6.107	-	6.107	10.447	4.824	1.365	1.328	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Project MDAP/MAIS Code:** 180

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

This project provides Test and Evaluation (T&E) requirements for DDG-51 Flight III to meet Initial Operational Capability (IOC) in FY 2024. T&E will concentrate on verifying integration and interoperability of employed technologies and systems in the DDG-51 FLT III design to achieve the mission capabilities and performance requirements as defined in the DDG-51 Flight III Capability Development Document (CDD). T&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP). Funding planned is for the execution of Developmental Testing (DT), Operational Testing (OT), and Live Fire Test and Evaluation (LFT&E).

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> DDG-51 Flight III Test and Evaluation	5.196	6.184	6.107	0.000	6.107
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> Continue Modeling and Simulation (M&S) efforts and model updates in Navy Enhanced Sierra Mechanics (NESM), Advance Survivability Assessment Program (ASAP), and Integrated Recovery Model (IRM) to support vulnerability analysis. Develop Verification, Validation, and Accreditation (V,V&A) plans and packages for all M&S platforms for Flight III. Cybersecurity testing continues with the execution of the DDG-51 FLT III Platform Level Cyber Tabletop exercise.					
<b>FY 2023 Base Plans:</b> Continue M&S efforts and model updates. Update threat models and tools as necessary to support Live Fire Test and Evaluation (LFT&E) survivability and vulnerability assessments. Integrate threat models and build Ship Infrared Model (IR). Conduct M&S runs for the record and conduct Verification, Validation and Accreditation of LFT&E models. Conduct cybersecurity developmental testing on DDG-51 FLT III to include Cooperative Vulnerability Identification (CVI) and Adversarial Cybersecurity DT Event (ACD).					
<b>FY 2023 OCO Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0409 / <i>DDG-51 Flt III Concept Development</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decrease of \$0.077M from FY 2022 to FY 2023 aligns with plan of the Cooperative Vulnerability Identification and Adversarial Cybersecurity DT Event in FY 2023.					
<b>Accomplishments/Planned Programs Subtotals</b>	5.196	6.184	6.107	0.000	6.107

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• SCN 2122: <i>DDG-51 Class</i>	3,388.774	3,841.740	5,223.466	-	5,223.466	4,442.722	4,261.845	4,427.870	4,391.205	4,598.955	129,978.574
• SCN/5300: <i>Completion of PY Shipbldg Progr</i>	9.634	0.000	228.577	-	228.577	183.692	41.092	163.397	99.250	0.000	725.642

**Remarks**

**D. Acquisition Strategy**

The DDG-51 class ships use a competitive acquisition strategy using Multi-Year Procurement (MYP) contracts awarded to two shipbuilders. DDG 51 plans to employ a similar MYP strategy to support ship procurements for FY 2023 - FY 2027.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0409 / <i>DDG-51 Flt III Concept Development</i>
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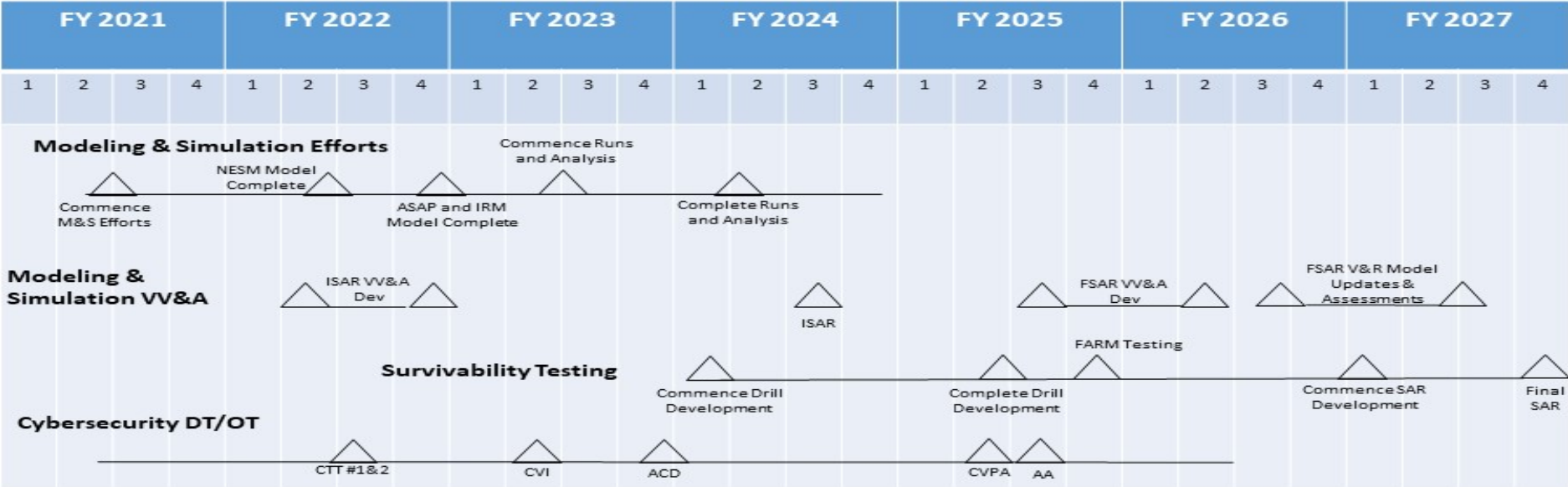
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Modeling and Simulation	WR	NRL : Washington, DC	0.000	0.205	Jul 2021	0.327	Oct 2021	0.536	Oct 2022	-		0.536	Continuing	Continuing	Continuing
Modeling and Simulation	WR	NSWC CD : Bethesda, MD	0.000	1.335	Mar 2021	1.423	Oct 2021	0.594	Nov 2022	-		0.594	Continuing	Continuing	Continuing
Modeling and Simulation	Various	T&E Solutions : Various	0.000	0.530	Mar 2022	0.980	Apr 2022	0.483	Dec 2022	-		0.483	Continuing	Continuing	Continuing
Modeling and Simulation	Various	Various : Various	0.000	0.100	May 2021	0.122	Oct 2021	0.200	Dec 2022	-		0.200	Continuing	Continuing	Continuing
Test and Evaluation	Various	Various : Various	0.000	1.413	Mar 2021	1.290	Nov 2021	0.310	Nov 2022	-		0.310	Continuing	Continuing	Continuing
LFT&E	Various	T&E Solutions : Various	0.000	0.275	Mar 2022	0.305	Apr 2022	0.400	Dec 2022	-		0.400	Continuing	Continuing	Continuing
LFT&E	WR	NSWC CD : Bethesda, MD	0.000	0.060	May 2021	0.065	Dec 2021	0.125	Dec 2022	-		0.125	Continuing	Continuing	Continuing
Cyber DT	Various	Various : Various	0.000	1.278	Aug 2021	1.672	Nov 2021	3.459	Jan 2023	-		3.459	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	5.196		6.184		6.107		-		6.107	Continuing	Continuing	N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		0.000	5.196	6.184	6.107	-	6.107	Continuing	Continuing	N/A

**Remarks**  
FY 2021 Award Dates reflect actuals. FY 2022 Award Dates revised based on FY 2022 Continuing Resolution.

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / Ship Prel Design & Feasibility Studies	Project (Number/Name) 0409 / DDG-51 Flt III Concept Development

# RDTE Schedule FY23 R-Exhibit



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0409 / <i>DDG-51 Flt III Concept Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0409</b>				
Navy Enhanced Sierra Mechanics (NESM) Model Development	2	2021	2	2022
Advance Survivability Assessment Program (ASAP) Model Update	2	2021	4	2022
Integrated Recoverability Model (IRM) Update	2	2021	4	2022
Initial Survivability Assessment Report (ISAR) Verification, Validation & Accreditation (VV&A) Development	2	2022	4	2022
Cyber Table Top (CTT) 1&2	3	2022	3	2022
Conduct Modeling and Simulation (M&S) Runs, and Analysis	2	2023	2	2024
Cooperative Vulnerability Identification (CVI)	2	2023	2	2023
Adversarial Cybersecurity DT Event (ACD)	4	2023	4	2023
Survivability Test Development	1	2024	2	2025
Initial Survivability Assessment Report (ISAR)	3	2024	3	2024
Cooperative Vulnerability Penetration Assessment (CVPA)	2	2025	2	2025
Adversarial Assessment (AA)	3	2025	3	2025
Final Survivability Assessment Report (FSAR) Verification, Validation & Accreditation (VV&A) Development	3	2025	2	2026
Conduct Failure and Recoverability Mode (FARM) Testing	4	2025	4	2025
Final Survivability Assessment Report (FSAR) V & R Model Updates	3	2026	3	2027
Final Survivability Assessment Report (SAR) Development	1	2027	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>				<b>Project (Number/Name)</b> 0411 / <i>DDG(X) Concept Development</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0411: <i>DDG(X) Concept Development</i>	0.000	12.439	8.519	49.745	-	49.745	97.453	42.093	39.685	40.078	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

To compete and win in an era of great power competition, the United States needs a balanced Naval force, capable of striking targets from all domains. The force design must emphasize distributed awareness, lethality and survivability in high-intensity conflict. The force must be adaptable, demonstrate presence, and be capable of projecting power by delivering precision effects at long ranges. The Future Naval Force Study (FNFS) and the Future Surface Combatant Force Analysis of Alternatives (FSCF AoA) identified the requirement for future large surface combatants (LSCs) to be capable of hosting directed energy (DE) weapons, larger missiles for increased range and speed, increased magazine depth, growth in organic sensors, and an efficient integrated power system to manage the dynamic loads. DDG-51 Flight (FLT) III is highly capable, but after over 40 years in production and 30 years of upgrades the hull form does not provide sufficient space and center of gravity margin to host these future capabilities. To reset these design allowances for the future of naval warfare, requirements trade-off and design studies were performed from FY 2018 to FY 2020 that considered modification of existing surface combatant and amphibious ships in addition to new concepts. These studies concluded that a new material solution via DDG(X) is required to deliver the necessary margins and flexibility to succeed the DDG 51 Class as the next enduring LSC combining the DDG 51 FLT III combat system elements with new hull form, an efficient Integrated Power System (IPS) and greater endurance reducing the Fleet logistics burden. By including the DDG 51 FLT III combat system elements in the DDG(X) baseline, Navy is taking an "evolutionary" (vice "revolutionary") approach to the class, incorporating a critical lesson learned from the successful evolution of the DDG 51 Class from CG 52.

The CNO approved DDG(X) Top Level Requirements (TLR) in December 2020 that set the basis for a draft Capabilities Development Document (CDD) released in October 2021. The CDD will enter staffing in FY 2024 and will be validated in FY 2025. FY 2021 focused on concept formulation and collaboration with DDG 51 shipyards to achieve the CNO's cost, schedule and performance targets. FY 2022 continued focus on concept formulation; shipyard engagement in program planning; increased vendor participation; and the planning for preliminary design. FY 2023 efforts will focus on conducting a Systems Requirement Review (SRR); preliminary design activities; specification development; continued risk mitigations for critical systems per sections 1034 and 131 of the FY 2020 NDAA; and preparations for contract design beginning in FY 2026. The planned DDG 51 FLT III follow-on procurements will maintain the industrial base while the DDG(X) design and risk reduction efforts are executed in parallel.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> DDG(X) Design and Analysis	8.439	8.519	49.745	0.000	49.745
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> DDG(X) Design and Analysis efforts include all of the program and engineering efforts necessary to mature a functional ship design that meets validated requirements. DDG(X) design maturation will occur					

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>through the development of progressive technical data packages (TDP) that form the design baselines. The TDPs will be developed collaboratively using an Integrated Product and Process Development (IPPD) type strategy with Navy and industry partners over four phases: Concept Formulation (FY 2023 complete), Preliminary Design (FY 2023-2026), Contract Design (FY 2026 start), and Detail Design &amp; Construction. Preliminary Design activities will integrate shipyard developed design products with Navy managed specifications and critical system development activities.</p> <p>DDG(X) has assessed two critical systems in accordance sections 1034 and 131 of the FY 2020 National Defense Authorization Act (NDAA): Hull and Integrated Power Systems (IPS). Requirements for DDG(X) necessitate a new hull form. The new hull form will be designed, modeled, tested, and verified prior Detail Design as risk reduction to engineering changes or potential operational limitations upon delivery. DDG(X) Design and Analysis efforts provide the management and development of derived requirements and specifications to inform the IPS risk reduction procurement and testing executed under PE 0603573N / PU 2471. IPS test findings will be incorporated in final specifications and design products developed under this PE (0603564N / 0411) ensuring that the ship can accommodate the space, weight, power, cooling (SWAP-C) of the IPS and that the IPS can meet DDG(X) power and energy requirements. The interdependency of DDG(X) design and IPS risk reduction is critical.</p> <p><b>FY 2022 Plans:</b> In accordance with the FY 2022 congressional reductions the program has restructured the FY 2022 plans to align with the \$8.5M appropriated amount vice the \$79.7M requested. As such, Concept Formulation continues in FY 2022 along with planning for the Preliminary Design phase in FY 2023. A collaborative Navy/Industry team consisting of the Navy program office, Navy design team (government and contractor), General Dynamics, Bath Iron Works (BIW), Huntington Ingalls Industries, Ingalls Shipbuilding (HII) has been established at a small scale and is focusing on overarching program planning. In addition, engineering efforts are limited to design and specification maturation of the critical and long lead IPS requirements (supporting IPS procurements beginning in FY 2023 under PE 0603573N/PU 2471), and performing limited studies on ship design affordability initiatives. The Main Propulsion Motor may require a lead time of up to 48 months and the specification must be developed in FY 2022 to support IPS critical system testing in FY 2027.</p> <p><b>FY 2023 Base Plans:</b></p>					

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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0411 / <i>DDG(X) Concept Development</i>

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>FY 2023 will focus on finalization of Concept Formulation, execution of a System Requirements Review (SRR) and starting Preliminary Design. The collaborative Navy/Industry team will continue to conduct cost and capability trades to complete Concept Formulation and refine design solutions where appropriate to ensure ship design meets acquisition and life cycle cost goals. SRR will be conducted to ensure traceability between the Draft CDD, derived requirements, and draft specifications. Successful completion of the SRR will initiate the Preliminary Design phase that develops two-dimensional and three-dimensional designs of DDG(X) traceable to an initial ship specification that supports a Functional Baseline Technical Data Package (TDP) in FY 2026. Preliminary Design will begin with the selection of major system components for the functional baseline including power and propulsion system components and deck systems. Key Preliminary Design activities include developing ship configuration and arrangements, overall allocation of space to system architectures, major propulsion, electrical, mission essential mechanical and combat system elements, vendor selections where appropriate and possible, interface control specifications for future warfare systems integration, long lead material candidates, ship manning, cyber-functionality of systems and components, and aviation integration. Development of the specifications and refinement of the Draft CDD requirements in FY 2023 will be accomplished with industry partners to mitigate known shipbuilding risks of design maturity. Validation of specifications and Draft CDD requirements will be executed with Navy stakeholders to support Joint staffing in FY 2024.</p> <p>FY 2023 funds will resource the collaborative design team to an executable level that forms the basis for a design workforce that can execute later design activities. The design team will mature parallel efforts of ship baseline design and critical systems, Hull Form and IPS, to satisfy sections 1034 and 131 of the FY 2020 NDAA and section 221 of the FY 2022 NDAA.</p> <ul style="list-style-type: none"> <li>- Hull Form risk reduction in FY 2023 will be focused on design and analysis of exploratory hull form model testing completed in FY 2021. The testing results identified hull characteristics from existing hull forms that require iterative refinement to finalize the hull form in FY 2024. Analysis informs the DDG(X) structural design, propeller design, and ship stability that will be tested through FY 2027.</li> <li>- IPS specifications derived from DDG(X) ship requirements will be developed to support risk reduction activities and test site hardware procurements via 0603573N/PU 2471.</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>		<b>Project (Number/Name)</b> 0411 / <i>DDG(X) Concept Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
Increase from FY 2022 \$8.5M to FY 2023 \$49.7M represents transition from Concept Formulation to Preliminary Design activities and fully resourcing the collaborative Navy/Industry team.						
<b>Title:</b> DDG(X) Power and Propulsion Risk Mitigation						
<b>Articles:</b>						
<b>Description:</b> In accordance with the FY 2020 NDAA, DDG(X) shall execute land based testing to reduce the technological and integration risks of the propulsion system. This effort will execute risk mitigation efforts for the DDG(X) Integrated Power System (IPS) selected and specified during design and analysis, including prototyping and testing in an Integrated Power and Energy Test Facility (ITF) that successfully demonstrates performance in a suitably realistic environment necessary to mitigate the technology risk.						
The development of the Integrated Power and Energy System Test Facility (ITF) at NSWCPD for DDG(X) was transferred in FY 2021 from this PE to PE 0603573N/PU 2471.						
<b>FY 2022 Plans:</b> The development of the Integrated Power and Energy System Test Facility (ITF) at NSWCPD for DDG(X) was transferred in FY 2022 from this PE to the Advanced Surface Machinery budget (PE0603573N/PU 2471) to align with the significant Navy investment in land based testing to reduce DDG(X) power and propulsion risks and leverage additional power and energy development efforts executed in that budget.						
<b>FY 2023 Base Plans:</b> N/A						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A						
<b>Accomplishments/Planned Programs Subtotals</b>						
		4.000	0.000	0.000	0.000	0.000
		-	-	-	-	-
		12.439	8.519	49.745	0.000	49.745
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>Remarks</b>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0411 / <i>DDG(X) Concept Development</i>

**D. Acquisition Strategy**

A formal acquisition strategy for DDG(X) is still being developed. Preliminary, Contract and Detail Designs for DDG(X) will be accomplished through a collaborative, multi-disciplinary Navy/Industry team composed of the LSC shipbuilders, suppliers, ship design agents and other subject matter experts. The Navy's intent is to ensure a smooth transition between Arleigh Burke (DDG 51) Class and DDG(X). As maturity of the design increases, it is expected that the shipbuilders will take on an increasing level of responsibility for the design.

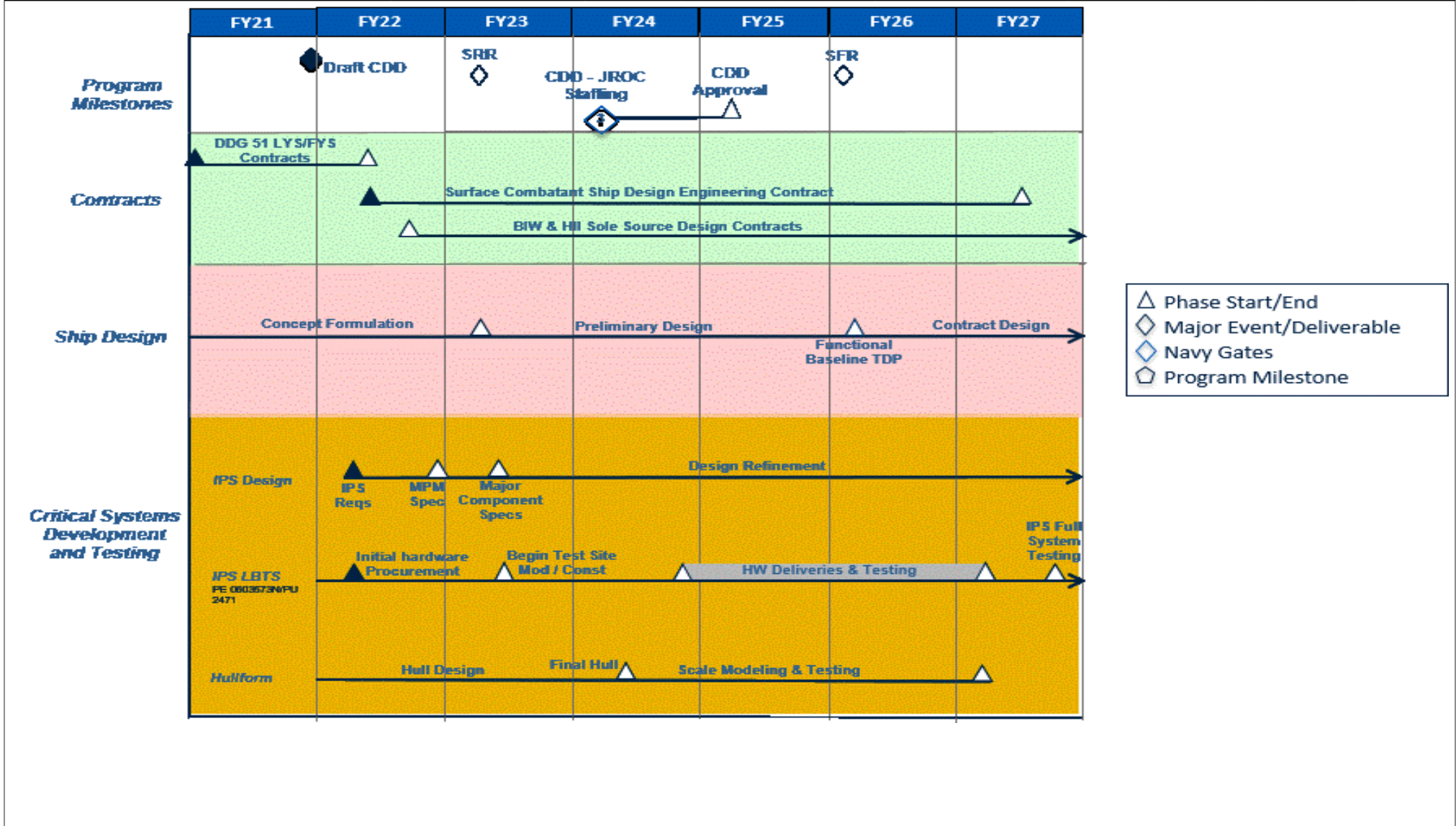
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 4				PE 0603564N / Ship Prel Design & Feasibility Studies					0411 / DDG(X) Concept Development						
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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(X) Design and Analysis	C/CPAF	Industry : Various	0.000	2.363	Apr 2021	3.287	Nov 2021	12.250	Nov 2022	-		12.250	Continuing	Continuing	Continuing
DDG(X) Design and Analysis	SS/CPAF	BIW : Bath, ME	0.000	0.511	Mar 2021	0.995	Nov 2021	8.510	Nov 2022	-		8.510	Continuing	Continuing	Continuing
DDG(X) Design and Analysis	SS/CPAF	HII : Pascagoula, MS	0.000	0.500	Mar 2021	0.995	Nov 2021	8.510	Nov 2022	-		8.510	Continuing	Continuing	Continuing
DDG(X) Design and Analysis	WR	Other Government Organizations : Various	0.000	0.287	Mar 2021	0.000	Nov 2021	3.765	Nov 2022	-		3.765	Continuing	Continuing	Continuing
DDG(X) Design and Analysis	WR	NSWC Carderock : Carderock, MD	0.000	2.087	Mar 2021	2.015	Nov 2021	8.260	Nov 2022	-		8.260	Continuing	Continuing	Continuing
DDG(X) Design and Analysis	WR	NSWC Philadelphia : Philadelphia, PA	0.000	1.422	Mar 2021	0.410	Nov 2021	6.300	Nov 2022	-		6.300	Continuing	Continuing	Continuing
DDG(X) Design and Analysis	WR	NSWC DD : Dahlgren, VA	0.000	0.676	Mar 2021	0.418	Nov 2021	1.500	Nov 2022	-		1.500	Continuing	Continuing	Continuing
Power & Prop Risk Mitigation	WR	Other Government Organizations : Various	0.000	2.118	Mar 2021	0.000		0.000		-		0.000	0.000	2.118	-
Power & Prop Risk Mitigation	C/CPFF	Various : Various	0.000	1.882	Mar 2021	0.000		0.000		-		0.000	0.000	1.882	-
<b>Subtotal</b>			0.000	11.846		8.120		49.095		-		49.095	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Program Management Support	WR	Various : Various	0.000	0.593	Mar 2021	0.399	Oct 2021	0.650	Nov 2022	-		0.650	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.593		0.399		0.650		-		0.650	Continuing	Continuing	N/A



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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / Ship Prel Design & Feasibility Studies	Project (Number/Name) 0411 / DDG(X) Concept Development



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 0411 / <i>DDG(X) Concept Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0411</b>				
Conceptual Formulation	1	2021	2	2023
System Requirements Review	2	2023	2	2023
Preliminary Design	2	2023	2	2026
Contract Design	2	2026	4	2027

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3389: <i>OPLOG IPT Development</i>	57.070	17.763	21.071	19.475	-	19.475	11.313	3.558	3.491	3.403	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Note**

FY 2016 and prior year efforts were financed under NDSF BA4 PE 0408042N Project 3117 Naval Operational Logistics (OPLOG) Integration. FY 2017, FY 2019 and forward is financed under this Program Element (Project 3389). FY 2018 financed under Congressional add Project 9999/C404 included in prior years shown in this budget.

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

Project 3389 - Develops enabling technologies for future and in-service afloat operational logistics and integrated supply systems; defines integrated combat logistics force and combatant logistics requirements; and conducts cooperative initiatives with acquisition programs, program sponsors, engineering managers, the Navy science and technology community, and Fleet customers. Operational Logistics Integration R&D (OPLOG) develops integrated, cross-platform (i.e. applicable to more than one ship class/type) operational logistics and operational energy conservation technologies and capabilities as well as draft acquisition and operations policy ensuring future Naval systems leverage emerging logistic capabilities and technologies to provide operationally effective and energy efficient logistics delivery.

Though the operational logistics family of systems touches all aspects of Naval presence and power projection, operational logistics capability and system interfaces typically have been left to individual acquisition programs to develop and resolve. Technology development is necessary to mitigate technological and operational risk before ship acquisition programs accept new technologies. This project provides a foundation for the transition and systems development of science & technology initiatives evolving from the Office of Naval Research (ONR) Power & Energy Future Naval Capabilities (FNC), Enterprise and Platform Enablers FNC, Seabasing FNC, and from other enabling Government, industry and academia concepts to the acquisition community. Thus, this project resources continued research and development of appropriate technologies with applicability to multiple acquisition programs and defines and matures performance and interface requirements for those technologies. This project continues to identify, develop, integrate, demonstrate, and transition logistics technologies to improve the cost effectiveness of Fleet at sea logistics delivery through outreach, coordination and collaboration with industry, academia, Fleet, and Enterprise representatives.

This project will continue to develop improved shipboard replenishment, transfer, and handling systems and components as well as asset visibility and standardized packaging technologies. This project includes development of approaches to reduce operation and maintenance costs of, and energy consumption by the logistics Fleet. This integrated suite of developed capabilities will enable multiple ship types to leverage common technologies common across DoD (Joint) and commercial transportation networks providing a more affordable, energy efficient, mission capable force. These capabilities and system-of-systems approach will be applied to concept development of future auxiliary force architectures.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p><b>Title:</b> Advanced Systems</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b> Research, development, and testing of advanced refueling systems and concepts to include: completion of Seabased Petroleum Distribution System (SPDS) tech data package and fabrication of scaled prototype, operationally relevant testing of subscale SPDS, and continue development of full scale prototype; complete concept analysis of initial Open Ocean and Expeditionary Advanced Base Operations (EABO) to support Joint Off-Shore Fuel Farm (JOFF) projects; continue additional prototype fabrication and testing of Consolidated Tanking (CONSOL) kits which, when installed on commercial tankers, will provide the capability to replenish Combat Logistic Force ships with cargo fuel at sea; continue Improved Modular Fuel Distribution System (iMFDS) development in preparation for testing in FY 2023.</p> <p><b>FY 2023 Base Plans:</b> Research, development, and testing of advanced refueling systems and concepts to include: continue development of full scale SPDS, to include completion of tech data package, large fabrication materials procurement and continuation of full scale fabrication; continue iMFDS development, prototype fabrication and land based testing; complete additional prototype fabrication and testing of CONSOL kits for other tanker classes.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The decrease of funding from FY 2022 to FY 2023 of \$1.296M is due to completion of the majority of CONSOL adapter kit prototypes and completion of the subscale SPDS fabrication.</p>	17.138	20.706	19.410	0.000	19.410
	-	-	-	-	-
<p><b>Title:</b> Logistics Architectures</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This is annual funding needed by the Center for Naval Analyses (CNA) to maintain the Combat Logistics Force database so OPLOG can utilize the data to support logistics R&amp;D and concept development.</p> <p><b>FY 2022 Plans:</b></p>	0.050	0.065	0.065	0.000	0.065
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 1319 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>		<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
Center for Naval Analyses (CNA) collects data and maintains the Combat Logistics Force (CLF) database to support ongoing and future analyses.					
<b>FY 2023 Base Plans:</b> Center for Naval Analyses (CNA) collects data and maintains the Combat Logistics Force (CLF) database to support ongoing and future analyses.					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No change of funding from FY 2022 to FY 2023.					
<b>Title:</b> Shipboard Energy Conservation (E-STREAM)					
<b>Articles:</b>					
	0.575	0.300	0.000	0.000	0.000
	-	-	-	-	-
<b>FY 2022 Plans:</b> Complete technical data package and integrated logistics support plan for Navy Standard Transmission Replacement (NSTR) Hybrid for transition.					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of funding by \$.300M from FY 2022 to FY 2023 due to completion of tech data package and logistics support plan.					
<b>Accomplishments/Planned Programs Subtotals</b>					
	17.763	21.071	19.475	0.000	19.475
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
Not applicable for OPLOG R&D efforts					

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
Primary Hardware Development	Various	VARIOUS : Various	19.865	8.150	Jan 2021	8.725	Jan 2022	10.400	Jan 2023	-		10.400	Continuing	Continuing	Continuing
Ancillary Hardware Development	Various	VARIOUS : Various	6.350	2.159	Jan 2021	2.400	Jan 2022	2.750	Jan 2023	-		2.750	Continuing	Continuing	Continuing
Ship Integration	Various	VARIOUS : Various	3.550	0.750	Jan 2021	0.700	Jan 2022	0.650	Jan 2023	-		0.650	Continuing	Continuing	Continuing
Ship Suitability	Various	VARIOUS : Various	2.450	0.850	Jan 2021	0.300	Jan 2022	0.250	Jan 2023	-		0.250	Continuing	Continuing	Continuing
System Engineering	Various	VARIOUS : Various	4.940	1.810	Jan 2021	1.000	Jan 2022	0.465	Jan 2023	-		0.465	Continuing	Continuing	Continuing
<b>Subtotal</b>			37.155	13.719		13.125		14.515		-		14.515	Continuing	Continuing	N/A

**Remarks**

1. Primary Hardware Development, Ancillary Hardware Development and System Engineering is related to the Advanced Systems Joint Offshore Fuel Farm (JOFF) and SeaBased Petroleum Distribution System (SPDS) prototype development.
2. Award dates reflect initial award of incremental execution.
3. PY includes FY 2017 project 3389 and FY 2018 Congressional Add project C404.

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
Development Support	Various	VARIOUS : Various	3.275	0.820	Jan 2021	0.421	Jan 2022	0.520	Jan 2023	-		0.520	Continuing	Continuing	Continuing
Software Development	Various	VARIOUS : Various	0.125	0.025	Jan 2021	0.025	Jan 2022	0.025	Jan 2023	-		0.025	Continuing	Continuing	Continuing
Integrated Logistics Support	Various	VARIOUS : Various	1.118	0.225	Jan 2021	0.150	Jan 2022	0.080	Jan 2023	-		0.080	Continuing	Continuing	Continuing
Configuration Management	Various	VARIOUS : Various	2.527	0.605	Jan 2021	0.200	Jan 2022	0.075	Jan 2023	-		0.075	Continuing	Continuing	Continuing
Technical Data	Various	VARIOUS : Various	2.350	0.400	Jan 2021	0.150	Jan 2022	0.125	Jan 2023	-		0.125	Continuing	Continuing	Continuing
Studies & Analysis	Various	VARIOUS : Various	0.935	0.175	Jan 2021	0.900	Jan 2022	1.100	Jan 2023	-		1.100	Continuing	Continuing	Continuing
<b>Subtotal</b>			10.330	2.250		1.846		1.925		-		1.925	Continuing	Continuing	N/A

**Remarks**

1. Award dates reflect initial award of incremental execution.
2. PY includes FY 2017 project 3389 and FY 2018 Congressional Add project C404.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	VARIOUS : Various	4.550	0.825	Jan 2021	2.900	Jan 2022	2.200	Jan 2023	-		2.200	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various	VARIOUS : Various	3.274	0.650	Jan 2021	2.800	Jan 2022	0.460	Jan 2023	-		0.460	Continuing	Continuing	Continuing
<b>Subtotal</b>			7.824	1.475		5.700		2.660		-		2.660	Continuing	Continuing	N/A

**Remarks**  
 1. Award dates reflect initial award of incremental execution.  
 2. PY includes FY 2017 project 3389 and FY 2018 Congressional Add project C404.

<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Contractor Engineering Support	Various	VARIOUS : Various	0.661	0.150	Jan 2021	0.150	Jan 2022	0.125	Jan 2023	-		0.125	Continuing	Continuing	Continuing
Government Engineering Support	Various	VARIOUS : Various	1.100	0.169	Jan 2021	0.250	Jan 2022	0.250	Jan 2023	-		0.250	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.761	0.319		0.400		0.375		-		0.375	Continuing	Continuing	N/A

**Remarks**  
 1. Award dates reflect initial award of incremental execution.  
 2. PY includes FY 2017 project 3389 and FY 2018 Congressional Add project C404.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	57.070	17.763	21.071	19.475	-	19.475	Continuing	Continuing	N/A

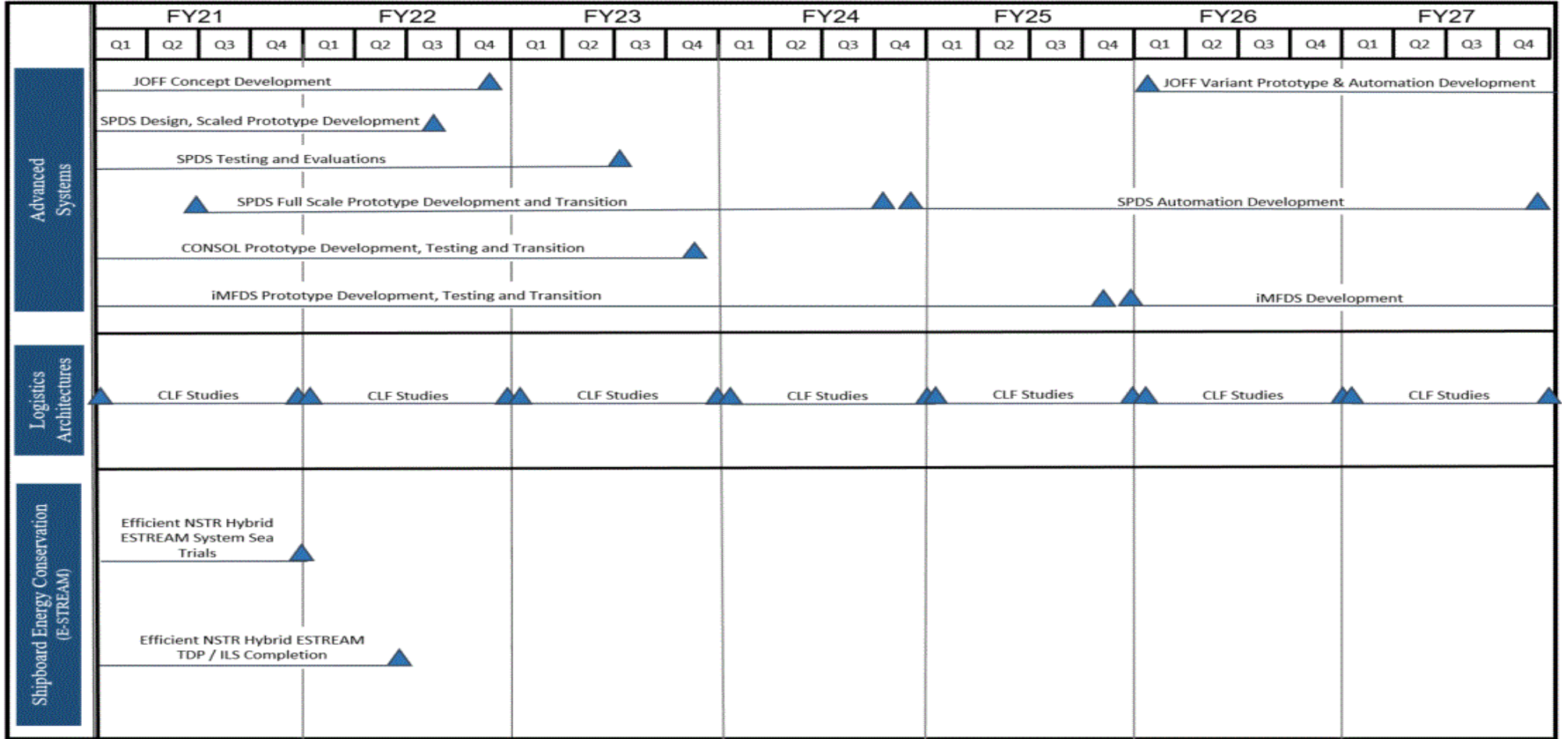
**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>
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Note: FY2016 and prior year (FY14 and earlier) efforts were financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3116 (Strategic Sealift Research and Development). FY 2015, FY 2017, FY2018, FY2019, FY2020 and out-year funds are financed under this program element.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 3389 / <i>OPLOG IPT Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3389</b>				
Advanced Systems	1	2021	4	2027
Logistics Architectures	1	2021	4	2027
Shipboard Energy Conservation (E-STREAM)	1	2021	2	2022

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / Ship Prel Design & Feasibility Studies	<b>Project (Number/Name)</b> 9999 / Congressional Adds
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9999: Congressional Adds	0.000	10.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	15.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

With the mishaps related to the McCain and Fitzgerald collisions, the U.S. Navy seeks oversight and modernization of surface fleet bridge configurations. The goal of the Bridge Integration Program is to modernize bridges for functional commonality and improved watch stander performance. In order to identify trends that will improve to bridge commonality, rigorous and methodical data analysis, such as modeling and simulation, will be employed. The results of this analysis will ultimately lead to a reduced number of bridge configurations, allowing Sailors to more easily transition between ship assignments and reducing the cost of maintaining trainers across multiple bridge configurations.

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

	FY 2021	FY 2022
<p><b>Congressional Add:</b> Bridge Integration Program</p> <p><b>FY 2021 Accomplishments:</b> NAVSEA SEA21 PMS443 Ship Control System (SCS) and Bridge Integration PARM supports bridge design configuration analysis, modernization, and standardization. This will directly contribute to national security by improved capabilities to ship and treat the bridge as a single combat system warfighting environment, enhancing operational availability and readiness and increasing lethality. In addition, leveraging modeling and simulation methods and data synthesis will assist in the early identification of future mishaps leading to increased fleet operational readiness and a reduction in unexpected maintenance costs.</p> <p><b>FY 2022 Plans:</b> N/A</p>	10.000	0.000
<p><b>Congressional Add:</b> Preliminary ship design of next-gen hospital ship</p> <p><b>FY 2021 Accomplishments:</b> N/A</p> <p><b>FY 2022 Plans:</b> FY 2022 funds will be used to fund requirements development via a Requirements Evaluation Team (RET), as well as, conduct of feasibility studies with Industry. Efforts include medical mission analysis and development, systems engineering, naval architecture and marine engineering in support of design development. Efforts will also support future Analysis of Alternatives.</p>	0.000	5.000
<b>Congressional Adds Subtotals</b>	10.000	5.000

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

N/A

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>

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

**Remarks**

**D. Acquisition Strategy**

N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / Ship Prel Design & Feasibility Studies	<b>Project (Number/Name)</b> 9999 / Congressional Adds
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
Feasibility Studies	Various	Various : Various	0.000	0.000		3.000	Nov 2022	0.000		-		0.000	0.000	3.000	-
<b>Subtotal</b>			0.000	0.000		3.000		0.000		-		0.000	0.000	3.000	N/A

**Remarks**  
C754: Feasibility Studies awarded to industry partners.

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
SCS / BI PARM Analysis	IA	GSA : Illinois	0.000	8.700	Apr 2021	0.000		0.000		-		0.000	0.000	8.700	-
SCS / BI PARM Analysis	WR	NSWC : TBD	0.000	1.300	Sep 2021	0.000		0.000		-		0.000	0.000	1.300	-
PM & Engineering Support	Various	various : various	0.000	0.000		1.000	Apr 2022	0.000		-		0.000	0.000	1.000	-
Technical Support	Various	various : various	0.000	0.000		1.000	Apr 2022	0.000		-		0.000	0.000	1.000	-
<b>Subtotal</b>			0.000	10.000		2.000		0.000		-		0.000	0.000	12.000	N/A

**Remarks**  
C651- Congressional Add for the Ship Control System (SCS) and Bridge Integration PARM (PMS443) to support bridge design configuration analysis, modernization, and standardization. This will directly contribute to national security by improved capabilities to ship and treat the bridge as a single combat system warfighting environment, enhancing operational availability and readiness and increasing lethality. In addition, leveraging modeling and simulation methods and data synthesis will assist in the early identification of future mishaps leading to increased fleet operational readiness and a reduction in unexpected maintenance costs.  
C754: Feasibility Studies Analysis and requirements development PM/Technical and Engineering support.

<b>Project Cost Totals</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
	0.000	10.000	5.000	0.000	-	0.000	0.000	15.000	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Navy</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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><i>Ship Control Systems / Bridge Integration PARM establishment</i></b>	
GSA Contract # 47QFLA20C0006 Funding Issued	█
Preliminary Ship Design of Next-Gen Hospital Ship: Feasibility Studies	████████████████████
Preliminary Ship Design of Next-Gen Hospital Ship: Warfare Center Analysis	████████████████████

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603564N / <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Ship Control Systems / Bridge Integration PARM establishment</i></b>				
GSA Contract # 47QFLA20C0006 Funding Issued	3	2021	3	2021
Preliminary Ship Design of Next-Gen Hospital Ship: Feasibility Studies	1	2023	4	2023
Preliminary Ship Design of Next-Gen Hospital Ship: Warfare Center Analysis	3	2022	4	2023