Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604707N *I SEW Architecture/Eng Support*

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	45.427	5.969	9.340	10.229	-	10.229	9.984	10.039	10.219	10.381	Continuing	Continuing
2356: *Maritime Concept Generation & Development*	45.427	5.969	9.340	10.229	-	10.229	9.984	10.039	10.219	10.381	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Maritime Concept Generation & Development (MCGD) project focuses on the generation, development and validation of warfighting concepts, Concept of Operations (CONOPS) and doctrine in order to eliminate war fighting gaps. Naval Warfare Development Command (NWDC) also manages the Fleet Experimentation program (formerly Sea Trial). The FY23 project will execute new experimentations in the areas of Electromagnetic Maneuver Warfare (EMW), Mine Warfare, Naval Integrated Fires, and Unmanned systems and conduct experiments (war simulations, Modeling & Simulation (M&S), at-sea events) to develop emerging Naval concepts.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	6.208	9.340	0.000	-	0.000
Current President's Budget	5.969	9.340	10.229	-	10.229
Total Adjustments	-0.239	0.000	10.229	-	10.229
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.239	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	10.229	-	10.229

Change Summary Explanation

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

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2356 / *Maritime Concept Generation & Development*	

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
2356: *Maritime Concept Generation & Development*	45.427	5.969	9.340	10.229	-	10.229	9.984	10.039	10.219	10.381	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Concept Generation and Development (MCGD) funding provides naval warfare subject matter expertise, experiment planning expertise, Modeling and Simulation (M&S) support, and analysis expertise to execute fleet experiments (and the individual experiment initiatives contained within) focused on critical warfighting capabilities and the development of Distributed Military Operations and other emerging Naval concepts.

Typical deliverables for each experimental effort include:

- Experiment control plan
- Data Collection and Analysis Plan (DCAP)
- Experiment Analysis Summary Reference Document
- Experiment Engineering Plan
- Final Experiment Report (with Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities - Policy (DOTMLPF-P) recommendations)
- New/refined doctrine/Tactics, Techniques and Procedures (TTP).

The MCGD project funds four main efforts:

(1) Provides critical concept development and experimentation manpower, and warfighting subject matter expertise aligned with the Concept Generation/Concept Development (CG/CD) program. The priorities for the CG/CD program are to develop concept/concept of operations and explore near/far-term technological and non-technological solutions to war fighting gaps across all naval warfare areas. The associated experimentation efforts include planning, systems engineering and integration, modeling and simulation support, event execution, data collection, analysis, and assessment for a wide-range of experimentation efforts including the examination of prototypes, tactical development and evaluation, support for Science and Technology (S&T) innovation, and program of record system development; venues such as workshops, seminars, war games, limited objective experiments, limited technical experiments, and live at-sea events are used to execute these experimentation efforts.

(2) Provides naval warfare subject matter expertise, experiment planning expertise, and analysis expertise to plan, execute, and assess experimentation for the fleets and warfighting development centers (WDC) at the operational and tactical levels. This includes a focus on WDC integration role, maritime command and control (C2), advanced cross-domain
warfighting, and maritime operations centers (MOCS)/operational level of war (OLW) lines of operations. Seeks to solve fleet-identified warfighting gaps (referenced within the Integrated Prioritized Capability Lists (IPCL), Urgent Operational Needs Statements (UONS), Fleet Commander's Guidance, etc.). The experimentation and prototyping efforts support the "last tactical mile" of many Navy S&T programs by supporting those programs where the technology is mature enough, but requires evaluation on or by a "fleet asset" - ships, airplanes, submarines, and sailors.

(3) Provides Modeling and Simulation (M&S) support to Navy experimentation efforts. M&S is used to stimulate decision making during seminar-style and system war gaming experiments and provides the simulated operational environment and capabilities with high-fidelity models such as the Joint Semi-Automated Force (JSAF) program. Additionally, where

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

applicable, the Navy Simulation System (NSS) "Monte Carlo" model is also used to give high confidence solutions and outcomes to complex warfighting problems.
(4) Develops focused, solution-driven tactics and evaluation through experimentation. This effort is focused on developing near-term doctrine solutions to address specific fleet-identified tactical issues. Maritime Concept Generation and Concept Development products include:
- Concepts (signed by the CNO that influence future funding and technological development)
- Enabling concepts
- Concepts of Operations (CONOPS)
- Final experimentation reports, to include findings, insights, and recommendations and Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities - Policy (DOTMLPF-P) change recommendations and plans for action
- Experiment Analysis Summary Reference Documents
- New/revised doctrinal and Tactics/Techniques/Procedures publications
- White papers (think pieces) intended to generate further discussion within Navy leadership

Specific products are listed in the Accomplishments/Plans section of this exhibit.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Maritime Concept Generation and Development	5.969	9.340	10.229	0.000	10.229
Articles:	-	-	-	-	-
FY 2022 Plans: FY 2022 Base Plans: Critical MCGD-resourced analytical and naval warfare subject matter expertise support is being used on FY22 experiments to follow up on findings from FY 20-21 experiments and focus on materiel and non-materiel solutions using appropriate experimentation venues including workshops, at-sea events, and war simulations. Experimentation efforts in FY22 directly support multiple strategic capability development efforts (including CNO's Unmanned Systems Campaign and CNO's Navigation Plan capability objectives) and align to the following Fleet Commander's priorities: NAVAL OPERATIONAL ARCHITECTURE Experiments are exploring technologies and associated TTP that support development of a robust and secure network infrastructure to link distributed forces together and a resilient web of persistent sensors, command and control nodes, platforms, and weapons. MARITIME FIRES Experiments support multiple efforts across the Navy, Marine Corps, and Joint force to enhance capabilities to project					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
synchronized lethal and non-lethal effects across all domains and provide persistent, all-domain, long-range precision fires, supported by agile, resilient, integrated networks. COUNTER-INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE Experiments support efforts to increase naval forces' ability to avoid detection by adversary ISR systems in order to establish, maintain, and exploit sea control in contested environments.					
FY 2023 Base Plans: Critical MCGD-resourced analytical and naval warfare subject matter expertise will design FY23 experiments to follow up on findings from FY 21-22 experiments and focus on materiel and non-materiel solutions using appropriate experimentation venues including workshops, at-sea events, and war simulations. Experimentation efforts in FY23 are expected to continue to directly support multiple strategic capability development efforts (including CNO's Unmanned Systems Campaign and CNO's Navigation Plan capability objectives) and align to the following Fleet Commander's priorities: C5ISR Experiments will explore technologies and associated TTP that support development of a robust and secure network infrastructure to link distributed forces together and a resilient web of persistent sensors, command and control nodes, platforms, and weapons. MARITIME FIRES Experiments will support multiple efforts across the Navy, Marine Corps, and Joint force to enhance capabilities to project synchronized lethal and non-lethal effects across all domains and provide persistent, all-domain, long-range precision fires, supported by agile, resilient, integrated networks. COUNTER-INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE Experiments will support efforts to increase naval forces ability to avoid detection by adversary ISR systems in order to establish, maintain, and exploit sea control in contested environments.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
The increase of $0.889M provides the mission and analytical subject matter expertise required to conduct two additional at-sea examinations of potential solutions aligned to the fleet commanders' highest warfighting priorities. A multiyear experimentation campaign - composed of rapid and iterative at-sea experiments to advance development of new weapons, systems, or tactics - ensures each examination (conducted by analytical and naval mission subject matter experts) is designed to create warfighting advantage. The program has formed strategic partnerships to accelerate the delivery of near-term warfighting capabilities, Unmanned Systems Campaign, and OPNAV capability development roadmaps. The program is also integrated with OPNAV N7's Analytic Master Plan by leveraging existing work prior to objective development and sharing results to inform the body of knowledge.					
Accomplishments/Planned Programs Subtotals	5.969	9.340	10.229	0.000	10.229

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This funding is used to acquire intellectual capital in emerging conceptual and technical areas through contracts providing expertise in concepts and experiment design, execution and analysis to mitigate fleet-identified current and future warfighting gaps.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	C/CPFF	Defense Technical Information Center : Ft Belvoir VA	22.678	2.762	Dec 2020	4.336	Dec 2021	4.529	Dec 2022	-		4.529	Continuing	Continuing	Continuing
System Test and Evaluation	Various	NIWC Atlantic : Charleston, SC	2.734	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Test and Evaluation	Various	ONR : Washington, DC	1.370	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Test and Evaluation	Various	NAVSEA : Washington, DC	1.334	0.000		0.000		0.000		-		0.000	0.000	1.334	-
System Test and Evaluation	PO	Naval Underwater Warfare Center : Newport RI	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
System Test and Evaluation	C/CPFF	NAVSUP : Norfolk VA	13.947	3.207	Feb 2021	5.004	Feb 2022	5.700	Feb 2023	-		5.700	0.000	27.858	-
Center for Naval Analysis	IA	Center for Naval Analysis : Norfolk, VA	0.154	0.000		0.000		0.000		-		0.000	0.000	0.154	-
		Subtotal	42.717	5.969		9.340		10.229		-		10.229	Continuing	Continuing	N/A

Remarks

The vast majority of the contract costs are for contract labor, primarily on two large multi-award contracts, one through DTIC (Defense Services MAC) and one through Joint Staff J-7 MAC. Task orders on the DS MAC contract provide the majority of the Modeling & Simulation support for experimentation and some of the experiment planner support. Task orders on the JS J-7 MAC provide the majority of the experiment design, planner, and execution support.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	Navy Warfare Development Command : Norfolk, VA	2.710	0.000		0.000		0.000		-		0.000	0.000	2.710	-
		Subtotal	2.710	0.000		0.000		0.000		-		0.000	0.000	2.710	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 2356 / *Maritime Concept Generation & Development*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.427	5.969		9.340		10.229		-		10.229	Continuing	Continuing	N/A

Remarks

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 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

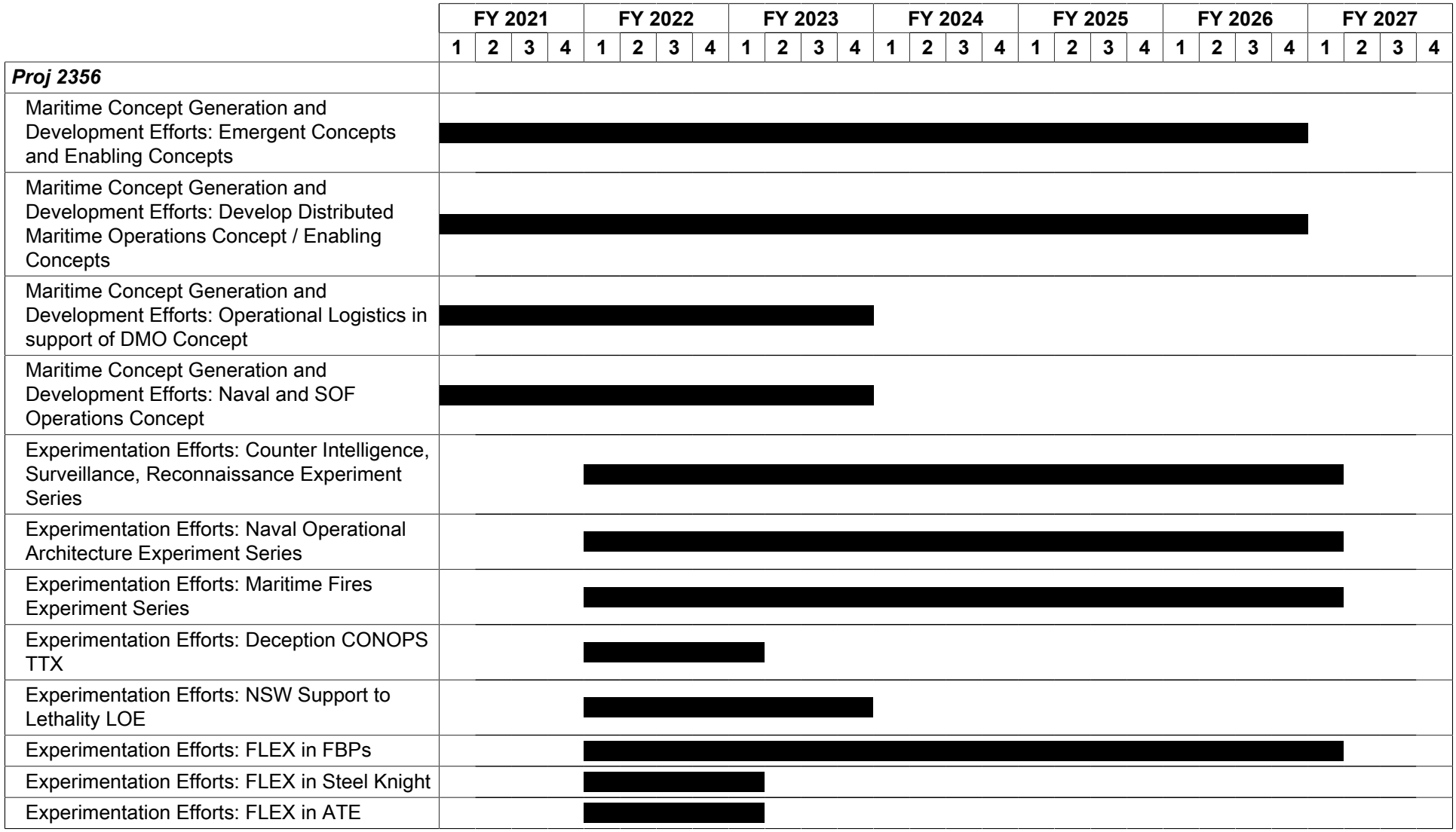

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

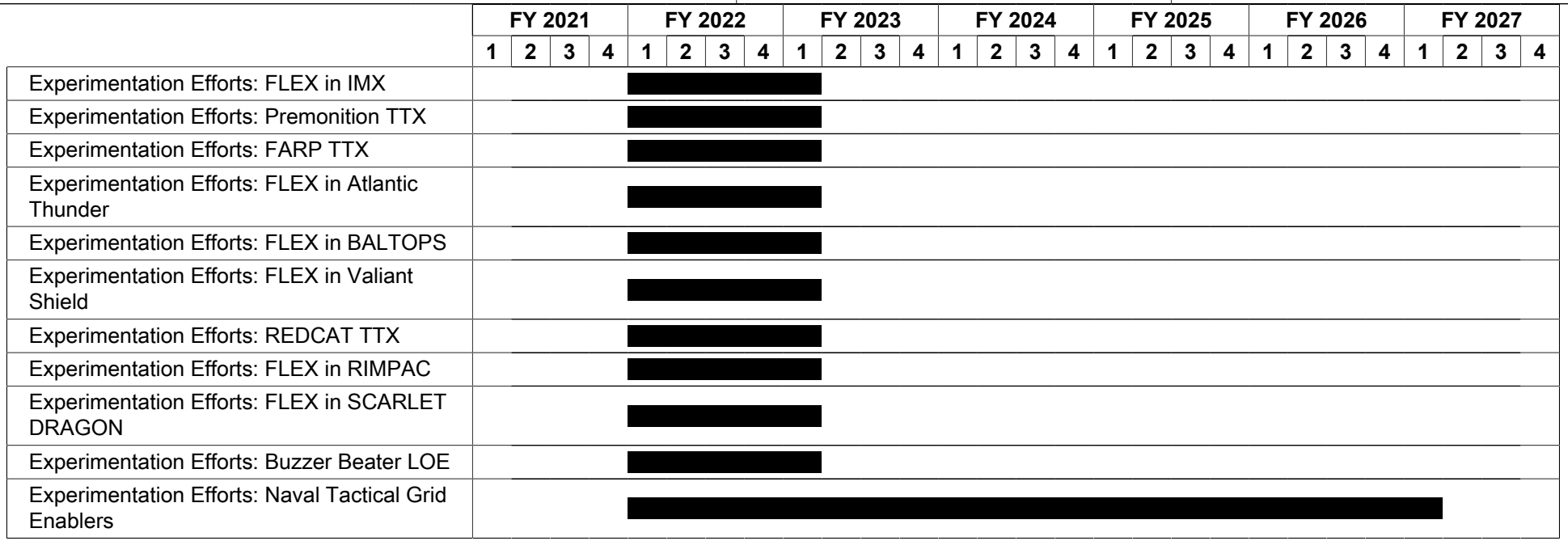

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2356				
Maritime Concept Generation and Development Efforts: Emergent Concepts and Enabling Concepts	1	2021	4	2026
Maritime Concept Generation and Development Efforts: Develop Distributed Maritime Operations Concept / Enabling Concepts	1	2021	4	2026
Maritime Concept Generation and Development Efforts: Operational Logistics in support of DMO Concept	1	2021	4	2023
Maritime Concept Generation and Development Efforts: Naval and SOF Operations Concept	1	2021	4	2023
Experimentation Efforts: Counter Intelligence, Surveillance, Reconnaissance Experiment Series	1	2022	1	2027
Experimentation Efforts: Naval Operational Architecture Experiment Series	1	2022	1	2027
Experimentation Efforts: Maritime Fires Experiment Series	1	2022	1	2027
Experimentation Efforts: Deception CONOPS TTX	1	2022	1	2023
Experimentation Efforts: NSW Support to Lethality LOE	1	2022	4	2023
Experimentation Efforts: FLEX in FBPs	1	2022	1	2027
Experimentation Efforts: FLEX in Steel Knight	1	2022	1	2023
Experimentation Efforts: FLEX in ATE	1	2022	1	2023
Experimentation Efforts: FLEX in IMX	1	2022	1	2023
Experimentation Efforts: Premonition TTX	1	2022	1	2023
Experimentation Efforts: FARP TTX	1	2022	1	2023
Experimentation Efforts: FLEX in Atlantic Thunder	1	2022	1	2023
Experimentation Efforts: FLEX in BALTOPS	1	2022	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 2356 / *Maritime Concept Generation & Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Experimentation Efforts: FLEX in Valiant Shield	1	2022	1	2023
Experimentation Efforts: REDCAT TTX	1	2022	1	2023
Experimentation Efforts: FLEX in RIMPAC	1	2022	1	2023
Experimentation Efforts: FLEX in SCARLET DRAGON	1	2022	1	2023
Experimentation Efforts: Buzzer Beater LOE	1	2022	1	2023
Experimentation Efforts: Naval Tactical Grid Enablers	1	2022	1	2027