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

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604707N / <i>SEW Architecture/Eng Support</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	51.396	8.980	10.229	9.993	-	9.993	10.039	10.219	10.381	10.589	Continuing	Continuing
2356: <i>Maritime Concept Generation & Development</i>	51.396	8.980	10.229	9.993	-	9.993	10.039	10.219	10.381	10.589	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 FY24 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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	9.340	10.229	9.984	-	9.984
Current President's Budget	8.980	10.229	9.993	-	9.993
Total Adjustments	-0.360	0.000	0.009	-	0.009
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.360	0.000			
• Program Adjustments	0.000	0.000	-0.041	-	-0.041
• Rate/Misc Adjustments	0.000	0.000	0.050	-	0.050

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
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 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
2356: <i>Maritime Concept Generation & Development</i>	51.396	8.980	10.229	9.993	-	9.993	10.039	10.219	10.381	10.589	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

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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 Chief of Naval Operations (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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: Maritime Concept Generation and Development</p> <p align="right">Articles:</p> <p>FY 2023 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: Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (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</p>	8.980	10.229	9.993	0.000	9.993
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>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.</p> <p>COUNTER-INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)</p> <p>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.</p> <p>FY 2024 Base Plans: Critical MCGD analytical and subject matter expertise support for FY24 experiments and focus on materiel and non-materiel solutions using appropriate experimentation venues including workshops, at-sea events, and war simulations. Experimentation efforts in FY24 will support multiple strategic capability development efforts (including CNO's Unmanned Systems Campaign) and will align to the following Fleet Commander's focus areas:</p> <p>Continue Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Experiments that 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.</p> <p>Continue Maritime Fires Experiments that 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.</p> <p>Continue Counter- Intelligence, Surveillance, and Reconnaissance Experiments that 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</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The decrease of \$0.245M between FY23 and FY24 is due to a decrease in the number of experiments that will be conducted to support multiple efforts.</p>					
Accomplishments/Planned Programs Subtotals	8.980	10.229	9.993	0.000	9.993

UNCLASSIFIED

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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.

UNCLASSIFIED

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

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
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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
Developmental Test & Evaluation (DT&E)	C/CPFF	Defense Technical Information Center : Ft Belvoir VA	25.440	4.036	Dec 2021	4.529	Dec 2022	4.333	Dec 2023	-		4.333	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	NIWC Atlantic : Charleston, SC	2.734	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	ONR : Washington, DC	1.370	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	NAVSEA : Washington, DC	1.334	0.000		0.000		0.000		-		0.000	0.000	1.334	-
Developmental Test & Evaluation (DT&E)	PO	Naval Underwater Warfare Center : Newport RI	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
Developmental Test & Evaluation (DT&E)	C/CPFF	NAVSUP : Norfolk VA	17.154	4.944	Feb 2022	5.700	Feb 2023	5.660	Feb 2024	-		5.660	0.000	33.458	-
Developmental Test & Evaluation (DT&E)	IA	Center for Naval Analysis : Norfolk, VA	0.154	0.000		0.000		0.000		-		0.000	0.000	0.154	-
Subtotal			48.686	8.980		10.229		9.993		-		9.993	Continuing	Continuing	N/A

Remarks
 The vast majority of the contract costs are for contract labor, primarily on two large multi-award contracts (MAC), one through Defense Technical Information Center (DTIC) MAC and one through Joint Staff J-7 MAC. Task orders on the DTIC MAC 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)				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
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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy							Date: March 2023				
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	51.396	8.980	10.229	9.993	-	9.993	Continuing	Continuing	N/A		

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / SEW Architecture/Eng Sup port	Project (Number/Name) 2356 / Maritime Concept Generation & Development

	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
Proj 2356																												
Maritime Concept Generation and Development Efforts: Emergent Concepts and Enabling Concepts																												
Maritime Concept Generation and Development Efforts: Develop Distributed Maritime Operations Concept / Enabling Concepts																												
Maritime Concept Generation and Development Efforts: Operational Logistics in support of DMO Concept																												
Maritime Concept Generation and Development Efforts: Naval and SOF Operations Concept																												
Experimentation Efforts: Counter Intelligence, Surveillance, Reconnaissance Experiment Series																												
Experimentation Efforts: Naval Operational Architecture Experiment Series																												
Experimentation Efforts: Maritime Fires Experiment Series																												
Experimentation Efforts: Deception CONOPS TTX																												
Experimentation Efforts: NSW Support to Lethality LOE																												
Experimentation Efforts: FLEX in FBPs																												
Experimentation Efforts: FLEX in Steel Knight																												
Experimentation Efforts: FLEX in ATE																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / SEW Architecture/Eng Sup port	Project (Number/Name) 2356 / Maritime Concept Generation & Development
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	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
Experimentation Efforts: FLEX in IMX	[REDACTED]																											
Experimentation Efforts: Premonition TTX	[REDACTED]																											
Experimentation Efforts: FARP TTX	[REDACTED]																											
Experimentation Efforts: FLEX in Atlantic Thunder	[REDACTED]																											
Experimentation Efforts: FLEX in BALTOPS	[REDACTED]																											
Experimentation Efforts: FLEX in Valiant Shield	[REDACTED]																											
Experimentation Efforts: REDCAT TTX	[REDACTED]																											
Experimentation Efforts: FLEX in RIMPAC	[REDACTED]																											
Experimentation Efforts: FLEX in SCARLET DRAGON	[REDACTED]																											
Experimentation Efforts: Buzzer Beater LOE	[REDACTED]																											
Experimentation Efforts: Naval Tactical Grid Enablers	[REDACTED]																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2356				
Maritime Concept Generation and Development Efforts: Emergent Concepts and Enabling Concepts	1	2022	4	2026
Maritime Concept Generation and Development Efforts: Develop Distributed Maritime Operations Concept / Enabling Concepts	1	2022	4	2026
Maritime Concept Generation and Development Efforts: Operational Logistics in support of DMO Concept	1	2022	4	2023
Maritime Concept Generation and Development Efforts: Naval and SOF Operations Concept	1	2022	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

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / <i>SEW Architecture/Eng Support</i>	Project (Number/Name) 2356 / <i>Maritime Concept Generation & Development</i>
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Events by Sub Project	Start		End	
	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