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

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 0604292N / <i>FUTURE VERTICAL LIFT (MARITIME STRIKE)</i>							
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	0.000	5.038	8.274	5.103	-	5.103	0.000	0.000	0.000	0.000	0.000	18.415
2940: <i>Future Vertical Lift (Maritime Strike)</i>	0.000	5.038	8.274	5.103	-	5.103	0.000	0.000	0.000	0.000	0.000	18.415

A. Mission Description and Budget Item Justification

Future Vertical Lift (Maritime Strike) (FVL (MS)) directs a Naval Aviation initiative to close key warfighting gaps and recapitalize capabilities lost when legacy rotary wing platforms (MH-60R, MH-60S, and MQ-8C) reach service-life limits beginning in the late 2020s. The FVL (MS) program will develop and field more capable, maintainable and reliable crewed and uncrewed rotorcraft systems to meet the needs of the Navy. FVL (MS) will be a key component of Distributed Maritime Operations (DMO) which will add warfighting capabilities in long-range Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T), Surface Warfare, Undersea Warfare (Anti-Submarine Warfare and Mine Warfare), Air Warfare, Electronic Warfare, Naval Special Warfare, Personnel Recovery, Patient Movement, Humanitarian Assistance/ Disaster Relief and Combat Logistics. The activities conducted under this program will contribute to the acquisition documentation required to support a Milestone A (MS-A) decision and enable Technology Maturation and Risk Reduction (TMRR) key activities. These efforts will enable timely development of a system that provides best value and capability to the warfighter while maintaining effective and efficient war fighting capability in support of the Navy's 30-year Aviation Plan.

The FVL-MS program is funded with FY21 and FY22 in order to prepare and conduct an AoA to address critical capability gaps; the USN anticipates MDD completion and the start of the AoA in the second quarter of FY22 with a nine-month completion mandate. FY 2023 request will support development of an Acquisition Strategy, Life Cycle Cost Estimate, Systems Engineering Plan, and a Life Cycle Sustainment Plan.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	5.097	9.825	0.000	-	0.000
Current President's Budget	5.038	8.274	5.103	-	5.103
Total Adjustments	-0.059	-1.551	5.103	-	5.103
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.551			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.059	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

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• Adjustments to Budget Year	-	-	5.103	-	5.103
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Change Summary Explanation

Technical: Not applicable.

Schedule: AoA updated from fourth quarter of FY 2021 to second quarter of FY 2022 start to align with OSD CAPE approval of AoA Study Plan.

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		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604292N / <i>FUTURE VERTICAL LIFT (MARITIME STRIKE)</i>					Project (Number/Name) 2940 / <i>Future Vertical Lift (Maritime Strike)</i>		
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
2940: <i>Future Vertical Lift (Maritime Strike)</i>	0.000	5.038	8.274	5.103	-	5.103	0.000	0.000	0.000	0.000	0.000	18.415
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Future Vertical Lift (Maritime Strike)(FVL (MS)) project directs developmental activities in support of the replacement of the current inventory of Navy helicopters in the 2030+ timeframe. Specific development activities required for FVL (MS) may include: capability requirements definition, documentation, and validation; Analysis of Alternatives (AoA) planning and execution including AoA Study Guidance and Study Plan preparation); completion of affordability studies; establishment of the appropriate security environment (e.g. computers, facilities, and administration); production of an Acquisition Strategy (AS), Life Cycle Cost Estimate (LCCE), Life Cycle Sustainment Plan (LCSP), Systems Engineering Plan (SEP), and Draft Capability Development Document (CDD); Request for Proposal (RFP) development: acquisition documentation; risk reduction initiatives; design trade studies; and support to joint FVL, including open hardware and software reference and objective architectures definition, mission system interoperability, and shipboard compatibility. These activities will result in completion of all acquisition documentation required for Milestone-A in FY 2024. Follow-on activities support preparation and execution of efforts to develop common systems reference and objective open architectures, and eventual prototype aircraft flight demonstrations in support of the FVL Technology Maturation and Risk Reduction (TMRR) acquisition phase. Activities and technologies developed also have the potential to be leveraged for sustainment of legacy Navy helicopters. These efforts will enable timely development of a system that provides best value and capability to the Joint Warfighter while maintaining effective and efficient war fighting capability in support of the Navy's 30 year Aviation Plan.

FY 2023 budget funds the FVL (MS) post-AoA follow-on activities to include analyses, studies and development of acquisition documentation. Tasks to be performed may include post-AoA support, acquisition program management functions, engineering modeling and analysis, system specification and Draft CDD development and design trade studies, and other related follow on activities.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: FVL (MS) Requirements Definition and Acquisition Documentation	5.038	8.274	5.103	0.000	5.103
Articles:	-	-	-	-	-
FY 2022 Plans:					
Continue support for FVL(MS) AoA execution, to assess the technical feasibility, technical risk, and affordability of potential strategic solutions with the intent to develop the next generation of Naval rotary wing aircraft systems. Tasks to be informed may include but are not limited to: AoA support, acquisition program management functions, engineering, engineering modeling and analysis, test and evaluation development, system specification and Draft CDD development, and design trade studies, acquisition program management functions, acquisition documentation to support the Milestone A, RFP development, engineering modeling					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>and analysis, test and evaluation planning and development, a Model Based System Specification, Draft CDD completion, and design trade studies and prototyping on the Air Vehicle and all associated systems. These efforts may include but not be limited to studies, virtual simulation, conceptual design, prototyping of Air Vehicle, Avionics, Propulsion and Dynamics, Communications and Navigation, Weapons and Fire Control, Human Systems Integration, Survivability and Vulnerability, Missions and Missions Systems Management, Reliability and Maintainability, Training, Logistics, Sensor, Pilotage and Targeting Systems, VMS/Flight Control, and Software/Hardware architecture. Support for these efforts will come from government, industry and academia such as Naval Research Labs, DARPA, Georgia Tech Research Institute, John Hopkins University Applied Physics Lab, Penn State University Applied Research Lab, and various industry partners.</p> <p>FY 2023 Base Plans: Post-AoA follow-on activities to include analyses, studies and production of acquisition documentation. Tasks to be performed may include post-AoA support, acquisition program management functions, engineering modeling and analysis, system specification and Draft CDD development, design trade studies, virtual simulation, conceptual design of Air Vehicle, Avionics, Propulsion and Dynamics, Communications and Navigation, Weapons and Fire Control, Human Systems Integration, Survivability and Vulnerability, Missions and Missions Systems Management, Reliability and Maintainability, Training, Logistics, Sensor, Pilotage and Targeting Systems, VMS/Flight Control, Software/Hardware architecture. and other related follow on activities. Support for these efforts will come from government, industry and academia such as Naval Research Labs, DARPA, Georgia Tech Research Institute, John Hopkins APL, Penn State University Applied Research Lab, and various industry partners. Production of MS-A supporting documents may include but are not limited to: an Acquisition Strategy (AS), Life Cycle Cost Estimate (LCCE), Life Cycle Sustainment Plan (LCSP) and Systems Engineering Plan (SEP).</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Decrease from FY 2022 to FY 2023 reflects the completion of the AoA and the transition into post-AoA efforts such as documentation development, progressing towards a Milestone A program entry.</p>					
Accomplishments/Planned Programs Subtotals	5.038	8.274	5.103	0.000	5.103

C. Other Program Funding Summary (\$ in Millions) N/A

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

Remarks

D. Acquisition Strategy

The Analysis of Alternatives (AoA) will be initiated in 2QFY2022 to begin the assessment of the technical feasibility, operational feasibility, technical risk, and affordability of potential materiel and non-materiel solutions. The AoA will be completed in 1QFY2023 resulting in a recommendation for post-AoA follow-on efforts and a Milestone A entry. In FY 2023, post-AoA follow-on efforts will occur.

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

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Support (\$ in Millions)				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			
Government Engineering Support	WR	NAWC AD : Patuxent River, MD	0.000	3.300	Feb 2021	5.236	Nov 2021	3.066	Nov 2022	-		3.066	0.000	11.602	-
Trade Studies/ Requirements Analysis	Various	Various : Various	0.000	1.480	Mar 2021	0.969	Dec 2021	1.000	Dec 2022	-		1.000	0.000	3.449	-
AoA Study	C/CPFF	RAND Corporation : Washington, DC	0.000	0.000		1.000	Nov 2021	0.000		-		0.000	0.000	1.000	1.000
Architecture Framework Analysis	Various	Various : Various	0.000	0.000		0.449	Dec 2021	0.500	Dec 2022	-		0.500	0.000	0.949	-
Subtotal			0.000	4.780		7.654		4.566		-		4.566	0.000	17.000	N/A

Remarks
Decrease from FY 2022 to FY 2023 reflects the completion of the AoA and the transition into post-AoA efforts for documentation development and technical studies and analysis progressing towards a Milestone A program entry.

Management Services (\$ in Millions)				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			
Program Management	WR	NAWC AD : Patuxent River, MD	0.000	0.255	Feb 2021	0.600	Nov 2021	0.517	Nov 2022	-		0.517	0.000	1.372	-
Travel	Various	Various : Various	0.000	0.003	Feb 2021	0.020	Oct 2021	0.020	Oct 2022	-		0.020	0.000	0.043	-
Subtotal			0.000	0.258		0.620		0.537		-		0.537	0.000	1.415	N/A

Remarks
Decrease from FY 2022 to FY 2023 reflects the completion of the AoA and the transition into post-AoA efforts for documentation development, progressing towards a Milestone A program entry.

	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		0.000	5.038	8.274	5.103	-	5.103	0.000	18.415	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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PU 2940	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PU 2940																												
Milestone																												

Budget Schedule_03-04-2022_PR

Snapshot Date: 3/4/2022

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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2940				
Analysis of Alternatives	2	2022	1	2023
Pre-Materiel Development Decision Preparation	2	2021	4	2021
Program Planning and Documentation	1	2022	1	2024
Milestones: Materiel Development Decision	4	2021	4	2021
Milestones: MS-A	4	2024	4	2024