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 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604214M *I AV-8B Aircraft - Engine Dev*

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	551.914	16.543	10.146	9.205	-	9.205	8.358	8.656	8.940	9.684	Continuing	Continuing
0652: *AV-8B*	551.914	16.543	10.146	9.205	-	9.205	8.358	8.656	8.940	9.684	Continuing	Continuing

A. Mission Description and Budget Item Justification

The program provides for AV-8B Design, Development, Integration, and Test of various platform improvements such as: Engine Life Management Program (ELMP), Escape Systems, Joint Mission Planning System (JMPS), and Block upgrades to various mission systems and software Operational Flight Programs (OFPs) to include JMPS integration, avionics and communications systems, navigation equipment, weapons carriage and countermeasures, and studies and analyses of future capability expansion and unique flight testing. The program also provides for addressing obsolescence and readiness of avionics structural, hydraulic, electrical, environmental and mechanical systems to include engineering activities for development and design to support aircraft safety flight clearances, concept explorations, responses to evolving threats and developments to support Program Objective Memorandum.

The program's Evolutionary Acquisition Strategy includes Design, Development, Integration, and Test activities under the consolidated effort of Block Developments: The program's Evolutionary Acquisition Strategy includes Design, Development, Integration, and Test activities under the consolidated effort of Block Developments which includes H7.0 and follow-on block upgrades. The H7.0 block upgrade will implement full Link 16 capability, provide weapon improvements and integrate AIM-9X and Joint Standoff Weapon (JSOW). Link 16 is a Top 10 item in the Operational Advisory and Systems Safety Groups. The H7.0 OFP will fully implement the Harrier Link 16 integration, which will provide information sharing capabilities, integration of an increased number of Link 16 J-series messages and the ability to act on shared target track information. Connection to the Link 16 network is vital to the AV-8B's ability to operate within some Command and Control situations and Operational Plans, as designed today, as well as provide a tactical capability for the more effective and safe prosecution of both airborne and ground targets. Continued AV-8B combat relevance and ability to respond to evolving and emergent threats through end of service is critical to the Marine Air-Ground Task Force's ability to generate aviation combat power throughout the transition to F-35B. J-series, K-series, Tactical Targeting Network Technology, and other emerging datalink technology messages, as well as compliance with crypto modernization requirements and ability to use GPS-modernized weapons, are required to support current and future mission threats. Linked performance on par with current tactical platforms as well as design to communicate with F-35 is required for the AV-8B to remain tactically relevant to transition. H7.0 will also include the integration and test of weapons and sensors such as, but not limited to, AIM-9X, JSOW and Litening OFP V4, and will integrate required Display Computer processing improvements to enable H7.0 functionality. Integration of these weapons, to include continued use of current weapons as they are upgraded to modernized GPS capability, is vital to the Harrier's continued combat relevance to the Marine Expeditionary Unit and Global Response Force Combatant Commanders particularly as obsolete AIM-9M inventory dwindles.

Additionally, software integration and stores expansion testing will be required for systems to include a Helmet Mounted Cueing System (HMCS), Unique Weapons, survivability and Countermeasures, Second Generation Anti-jam Tactical UHF Radio for NATO (SATURN) communication waveform and associated radio and communication systems upgrades, Advanced Precision Kill Weapons System (APKWS), AIM-9X, AIM-120, ALE-43, survivability upgrades, standoff weapons such as JSOW and Joint Air-to-Ground Missile (JAGM) as well as test of emergent tactical requirements, and test of crypto modernization compliance. AV-8B funding also supports peculiar flight test requirements to include weapons integration/carriage and avionics, software/firmware upgrades, and avionics hardware component redesign activity. Studies and analyses will be conducted on systems such as survivability systems, HMCS, SATURN Communications and associated radio and communication

systems upgrades, and Beyond Line of Sight (BLOS) to assess feasibility of integrating on the AV-8B. The program also provides for the AV-8B air vehicle's sustained mission availability, and safe and reliable operational readiness until end of service. Sustainment of the aircraft structure, subsystems and software requires component and system analyses, technical planning, identification, prioritization and diagnosis of emergent problems and the allocation of resources for the development, testing, and flight clearance of engineering solutions in the areas of flight, crew safety and escape systems and structural integrity, obsolescence, systems reliability and maintainability, inventory preservation, alternative mission development or other emergent material or equipment conditions affecting AV-8B systems readiness. Activities include research/analysis for system safety deficiency corrections, fuel system safety improvements, structural analyses, monitoring and integrity analysis, component compatibility, component and materials obsolescence analyses and mitigation development, explorations for aging equipment, reliability improvement analyses and design developments. The ELMP is a comprehensive plan to increase and maintain safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and accessories. The program will accomplish this mission by conducting Engineering Project Description investigations to develop engineering solutions that address emergent safety, obsolescence, foreign object debris detection and prevention, fatigue life and maintenance issues.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	16.749	10.146	0.000	-	0.000
Current President's Budget	16.543	10.146	9.205	-	9.205
Total Adjustments	-0.206	0.000	9.205	-	9.205
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.206	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	-	-	9.205	-	9.205

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 / 5	R-1 Program Element (Number/Name) PE 0604214M / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

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
0652: *AV-8B*	551.914	16.543	10.146	9.205	-	9.205	8.358	8.656	8.940	9.684	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides for AV-8B Design, Development, Integration and Test of the following improvements: Engine Life Management Program (ELMP), Operational Flight Programs (OFPs) and Avionics/Weapons Integration, Escape System, readiness and obsolescence management. The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and Gas Turbine Starter (GTS), as well as other critical engine components. The Program Office will accomplish this mission through the Component Improvement Program (CIP), which entails Engineering Project Description investigations to derive safety and reliability improvements to the engine and engine components. H7.0 OFP will integrate full Harrier Link 16 capability, provide software updates, integrate AIM-9X, a Litening Common OFP update, provide Advanced Precision Kill Weapons System (APKWS) integration improvements, Joint Standoff Weapon (JSOW) integration, and common avionics ADS-B (out), Mode 5, and Mode S Identification Friend or Foe capabilities as well as integrate required Radar Display Computer processing improvements to enable H7.0 functionality. Other efforts include compliance with crypto modernization requirements, testing compatibility with GPS-modernized weapons, peculiar integration and flight test requirements such as weapons integration and testing, sensors, and countermeasures integration and stores expansion to include APKWS, Helmet Mounted Cueing System (HMCS), Beyond-Line-of-Sight (BLOS) communications, SATURN Communication Waveform and any associated radio/communication systems upgrades, AIM-9X, ALE-43, standoff weapons such as JSOW, and unique flight test, study and component redesign efforts of other avionics, sensors, structural components, aircraft subsystems, weapons systems, or emergent tactical requirements as they arise. The program is working closely with the Common Avionics Program and the Allies (Spain and Italy) on all efforts. Efforts also include engineering activities for development, design and test to support aircraft safety, flight clearance and concept exploration for resolution of emergent safety, service life, escape systems, compatibility, obsolescence, and readiness issues as well as response to fleet urgent operational requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Operational Flight Program (OFP) and Aircraft/Avionics/Subsystem/Weapons Systems Development and Integration	11.986	8.580	7.542	0.000	7.542
Articles:	-	-	-	-	-
Description: Develop, integrate, and test aircraft OFP updates, mission planning updates, Litening Pod software updates/capability expansions, support aircraft avionics development efforts, integrate and test unique weapons systems, sensors, and countermeasures such as AIM-120C, AIM-9X, HMCS, APKWS, BLOS Communications, Crypto Modernization activities, SATURN communication waveform capabilities and associated radio/ communication systems upgrades, avionics component obsolescence redesign efforts, survivability upgrades, ALE-43, standoff weapons such as JSOW and other weapons/avionics and sensor systems, avionics component redesign efforts and emergent tactical requirements as they arise, perform stores expansion testing, crypto modernization compatibility testing/integration, GPS-modernization compatibility testing/integration and conduct					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214M / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Digital Interoperability (to include Link 16) development, integration, and test efforts. Evaluate future capability expansions via studies and analyses. Develop solutions to obsolescence concerns to improve safety, readiness, structural integrity and systems reliability of the AV-8B aircraft. ***FY 2022 Plans:*** Extension of AV-8B end of service date to 2028 requires continued testing and integration efforts as well as research and innovation studies for airframe, avionics and subsystem engineering efforts to improve safety and reliability and mitigate obsolescence issues. Funding provided for completion of integration and flight test efforts and release of H7.0 OFP/Link 16/AIM-9X software integration. Funds also provided for future capability expansion studies and analysis efforts, follow-on OFP requirements development and software upgrade efforts (H7.2, H7.3), efforts required to respond to evolving and emerging threats, peculiar flight test requirements to include various required weapons/sensors/countermeasures/crypto modernization/GPS modernization compatibility testing/stores expansion integration and testing such as AIM-9X, ALE-43, JSOW, SATURN and other weapons/avionics systems. Additionally funds provided for continued research and innovation studies for airframe and subsystem safety and reliability improvements and engineering change proposals (ECPs). These efforts addressed known, predicted and emergent obsolescence issues, continued fatigue life tracking analyses and algorithm update development, continued fuselage fatigue life assessments to ensure continued safe operation of the aircraft through the end of service, Systems engineering efforts supported ongoing and emergent analysis and design/development/test efforts required to address systems safety, structural integrity, obsolescence, performance and readiness issues including efforts required to respond to evolving and emergent threats, mission systems, communication systems, navigation equipment, weapons carriage and countermeasures, structural, hydraulic, electrical, environmental and mechanical systems. ***FY 2023 Base Plans:*** Extension of AV-8B end of service date to 2028 requires continued testing and integration efforts, as well as research and innovation studies for airframe, avionics, and subsystem engineering efforts to improve safety and reliability, and mitigate obsolescence issues. Funds will provide for efforts on the follow-on OFP software upgrade (H7.2/H7.3 and beyond), future capability studies and analysis efforts, efforts required to respond to evolving and emerging threats, peculiar flight test requirements to include various required weapons/ sensors/ countermeasures/crypto modernization/GPS modernization compatibility testing/stores expansion integration and testing such weapons/stores updates, ALE-43, SATURN, associated radio and communication system upgrades and other weapons/avionics systems as they arise. Additionally, funds will provide for continued research and innovation studies for airframe and subsystem safety and reliability improvements and engineering change proposals (ECPs). The program will continue to address known, predicted, and emergent obsolescence					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214M / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
issues, and will continue fatigue life tracking analyses and algorithm update development. Fuselage fatigue life assessment will continue to ensure safe operation of the aircraft through the end of service. Systems engineering efforts will support ongoing and emergent analysis and design/development/test efforts required to address systems safety, structural integrity, obsolescence, performance and readiness issues, including efforts required to respond to evolving and emergent threats, mission systems, communication systems, navigation equipment, weapons carriage and countermeasures, structural, hydraulic, electrical, environmental, and mechanical systems. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease of $1.038M from FY22 to FY23 reflects completion and fielding of H7.0 OFP in FY22.					
Title: F402-RR-408 Engine Safety and Reliability Enhancements	4.557	1.566	1.663	0.000	1.663
Articles:	-	-	-	-	-
Description: Improve Safety and Reliability of the F402-RR-408 Engine and accessories for the AV-8B Harrier. ***FY 2022 Plans:*** The engineering CIP will conduct engineering investigations to develop ECPs for improvements and design solutions to correct deficiencies resulting from safety, obsolescence and structural fatigue for the engine and engine accessories, to maintain readiness and to meet mission requirements. Conduct research and innovation studies for FOD mitigation and other operational environment changes to improve engine safety and reliability. ***FY 2023 Base Plans:*** The engineering CIP will conduct engineering investigations to develop ECPs for improvements and design solutions to correct deficiencies resulting from safety, obsolescence and structural fatigue for the engine and engine accessories, to maintain readiness and to meet mission requirements. Conduct research and innovation studies for FOD mitigation and other operational environment changes to improve engine safety and reliability. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.097 from FY22 to FY23 reflects additional CIP investigations of safety and reliability improvements.					
Accomplishments/Planned Programs Subtotals	16.543	10.146	9.205	0.000	9.205

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214M / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• APN/0514: *AV-8 Series*	29.540	17.882	26.657	-	26.657	23.305	24.017	11.258	12.181	14.539	1,639.837

Remarks

D. Acquisition Strategy

Engineering efforts focused on obsolescence mitigation and readiness improvements ensure the maximum reliability and readiness levels for the AV-8B Type/ Model/Series by maintaining post production engineering and logistic support with the Original Equipment Manufacturers (OEMs). The program tracks readiness degraders, identifies and addresses obsolescence for all aircraft and avionics systems and subsystems, and identifies and addresses emerging in-service material developments related to ease of maintenance, safety, airframe life management and improved performance. The multi-disciplined team of program management, engineering, logistics, and financial personnel develop Engineering Change Proposals (ECPs), Rapid Action Minor Engineering Changes, Interim Rapid Action Changes to publications, trainer and support equipment modifications necessary to maintain aircraft reliability, readiness, and safety. The program also supports the constant improvement and analysis of fleet Fatigue Life Expended data to maximize aircraft structural life and to support the NAVAIR annual Structural Appraisal of Fatigue Effects report required by the Office of the Chief of Naval Operations (OPNAV), and structural fatigue life assessments to assure continued safe operation of the aircraft through the end of service date. Funding for the ELMP will be placed on a cost-type contract to Rolls-Royce to address safety of flight issues, top readiness degraders, engine removal and mission failure drivers in order to improve Fleet readiness and reduce cost of ownership of the F402-RR-408 and accessories. It is also developed to assess life management program issues and design fixes for any service revealed deficiencies. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration, and Test activity under the consolidated effort of Block Developments: H2.0, H4.0, H5.0, H6.0, H6.1., H6.2, H7.0, and following OFPs (H7.2/H7.3 and beyond). H7.0 OFP will provide the AV-8B integration of additional required Link 16 J-series messages, integration of AIM-9X and JSOW weapons, and APKWS integration updates. H7.0 will also be accomplished in conjunction with the Common Avionics Program and will integrate ADS-B (out), Mode 5, and Mode S capabilities. Follow on OFPs will address software improvements to enhance performance and usability of the aircraft software, and improvements to the display computer processing. Peculiar flight test efforts to include weapons, subsystem, avionics, survivability, and sensor integration such as AIM-120, AIM-9X, APKWS, ALE-43, ALR-67, HMCS, standoff weapons such as JSOW, crypto modernization compliance integration/testing, GPS modernization compatibility, SATURN communication waveform and associated radio/communication systems upgrades, and other avionics/weapons and sensor systems and emergent tactical requirements and avionics component redesign actions as they arise. Studies and analyses will be accomplished to assess future capability expansion feasibility and integration concepts to include weapons expansion, BLOS communications, SATURN communication waveform and associated radio/ communication systems upgrades, survivability upgrades, and other potential avionics, subsystem, weapons, or software capabilities as they arise.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214M / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

Product Development ($ 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
Primary Hardware Development - ELMP	C/CPFF	Rolls-Royce PLC : Bristol, GB	40.540	0.265	Dec 2020	0.995	Dec 2021	1.113	Dec 2022	-		1.113	Continuing	Continuing	Continuing
Primary Hardware Development - ELMP	WR	FRC E : Cherry Point, NC	0.000	0.116	Dec 2020	0.071	Dec 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Primary Hardware Development - OFP	WR	NAWCWD : China Lake, CA	96.911	3.840	Dec 2020	1.587	Dec 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering - OFP	C/CPFF	Boeing : St. Louis, MO	38.614	0.494	Jan 2021	0.000		0.100	Jan 2023	-		0.100	0.000	39.208	39.208
Systems Engineering - OFP	WR	NAWCWD : China Lake, CA	4.098	0.091	Nov 2020	0.525	Nov 2021	0.750	Nov 2022	-		0.750	Continuing	Continuing	Continuing
Systems Engineering - OFP	WR	NAWCAD : Patuxent River, MD	12.715	0.590	Nov 2020	0.400	Nov 2021	0.135	Nov 2022	-		0.135	Continuing	Continuing	Continuing
Systems Engineering - OFP	WR	NAWCWD : Point Mugu	0.952	0.000		0.000		0.053	Nov 2022	-		0.053	Continuing	Continuing	Continuing
Systems Engineering - OFP	C/CPFF	Wyle Labs : Patuxent River, MD	0.000	0.384	Nov 2020	0.000		0.000		-		0.000	0.000	0.384	0.384
Prior year cost no longer funded in the FYDP	Various	Various : Various	72.931	0.000		0.000		0.000		-		0.000	0.000	72.931	71.631
		Subtotal	266.761	5.780		3.578		2.151		-		2.151	Continuing	Continuing	N/A

Remarks

Line 2: Decrease from FY22 to FY23 due to completion of the Seal Diaphragm Upgrade development.
Line 3: Decrease from FY22 to FY23 due to completion of final testing of H7.0 OFP functionality and fielding in 4th quarter FY22.

Support ($ 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
Studies and Analysis - ELMP	WR	Office of Naval Research : Suitland, MD	0.000	1.092	Jul 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Studies and Analysis - ELMP	WR	NAWCAD : Patuxent River, MD	0.000	1.080	Jul 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214M / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

Support ($ 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
Studies and Analysis - OFP	WR	NAWCAD : Patuxent river, MD	0.000	1.560	Jul 2021	0.000		0.000		-		0.000	0.000	1.560	1.560
Studies & Analysis - OFP	C/CPFF	Boeing : St Louis, MO	8.857	0.000		0.100	Mar 2022	0.102	Mar 2023	-		0.102	0.000	9.059	8.064
Studies & Analysis - OFP	C/CPFF	Viasat : Carlsbad, CA	0.050	0.385	Aug 2021	0.000		0.000		-		0.000	0.000	0.435	0.435
Prior year cost no longer funded in the FYDP	Various	Various : Various	71.883	0.000		0.000		0.000		-		0.000	0.000	71.883	62.725
		Subtotal	80.790	4.117		0.100		0.102		-		0.102	Continuing	Continuing	N/A

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
Developmental Test & Evaluation - OFP	WR	NAWCWD : China Lake, CA	38.858	1.409	Jan 2021	4.090	Jan 2022	4.626	Jan 2023	-		4.626	Continuing	Continuing	Continuing
Operational Test & Evaluation - OFP	WR	COMOPTEVFOR : Norfolk, VA	25.592	0.429	Jan 2021	0.358	Jan 2022	0.287	Jan 2023	-		0.287	Continuing	Continuing	Continuing
Developmental Test & Evaluation - OFP	C/CPFF	Raytheon : Tucson, AZ	0.605	0.421	Jan 2021	0.000		0.000		-		0.000	0.000	1.026	1.026
DevelopmenOperational Test & Evaluation - OFP	WR	Eglin AFB : Eglin AFB, FL	0.000	0.080	Jan 2021	0.080	Jan 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Operational Test & Evaluation - OFP	C/CPFF	Delex Systems : Herndon, VA	0.000	0.000		0.110	Jan 2022	0.113	Jan 2023	-		0.113	0.000	0.223	0.223
Prior year cost no longer funded in the FYDP	Various	Various : Various	68.682	0.000		0.000		0.000		-		0.000	0.000	68.682	68.682
		Subtotal	133.737	2.339		4.638		5.026		-		5.026	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214M / *AV-8B Aircraft - Engine Dev*	Project (Number/Name) 0652 / *AV-8B*	

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
Engineering & Tec SRVC (Non-FFRDC) - OFP	C/CPFF	Trident : Huntsville, AL	1.426	0.000		0.000		0.000		-		0.000	0.000	1.426	1.426
Engineering & Tec SRVC (Non-FFRDC) - ELMP	C/CPFF	LTM, Inc : Havelock, NC	7.156	1.186	Jun 2021	0.000		0.000		-		0.000	5.492	13.834	13.834
Engineering & Tec SRVC (Non-FFRDC) - OFP	C/CPFF	DITC : FT Belvoir, VA	0.000	0.117	Nov 2020	0.000		0.000		-		0.000	0.000	0.117	0.117
Government Engineering Support - OFP	WR	NAWCWD : China Lake	0.000	0.136	Nov 2020	0.038	Nov 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support - ELMP	WR	NAWCAD : Patuxent River, MD	12.847	0.818	Nov 2020	0.500	Nov 2021	0.550	Nov 2022	-		0.550	Continuing	Continuing	Continuing
Government Engineering Support - OFP	WR	NAWCAD : Patuxent River, MD	7.800	1.980	Nov 2020	1.222	Nov 2021	1.326	Nov 2022	-		1.326	Continuing	Continuing	Continuing
Travel	WR	Various : Various	2.209	0.070	Oct 2020	0.070	Oct 2021	0.050	Oct 2022	-		0.050	Continuing	Continuing	Continuing
Prior year cost no longer funded in the FYDP	Various	Various : Various	39.188	0.000		0.000		0.000		-		0.000	0.000	39.188	18.549
		Subtotal	70.626	4.307		1.830		1.926		-		1.926	Continuing	Continuing	N/A

	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
Project Cost Totals	551.914	16.543		10.146		9.205		-		9.205	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214M / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

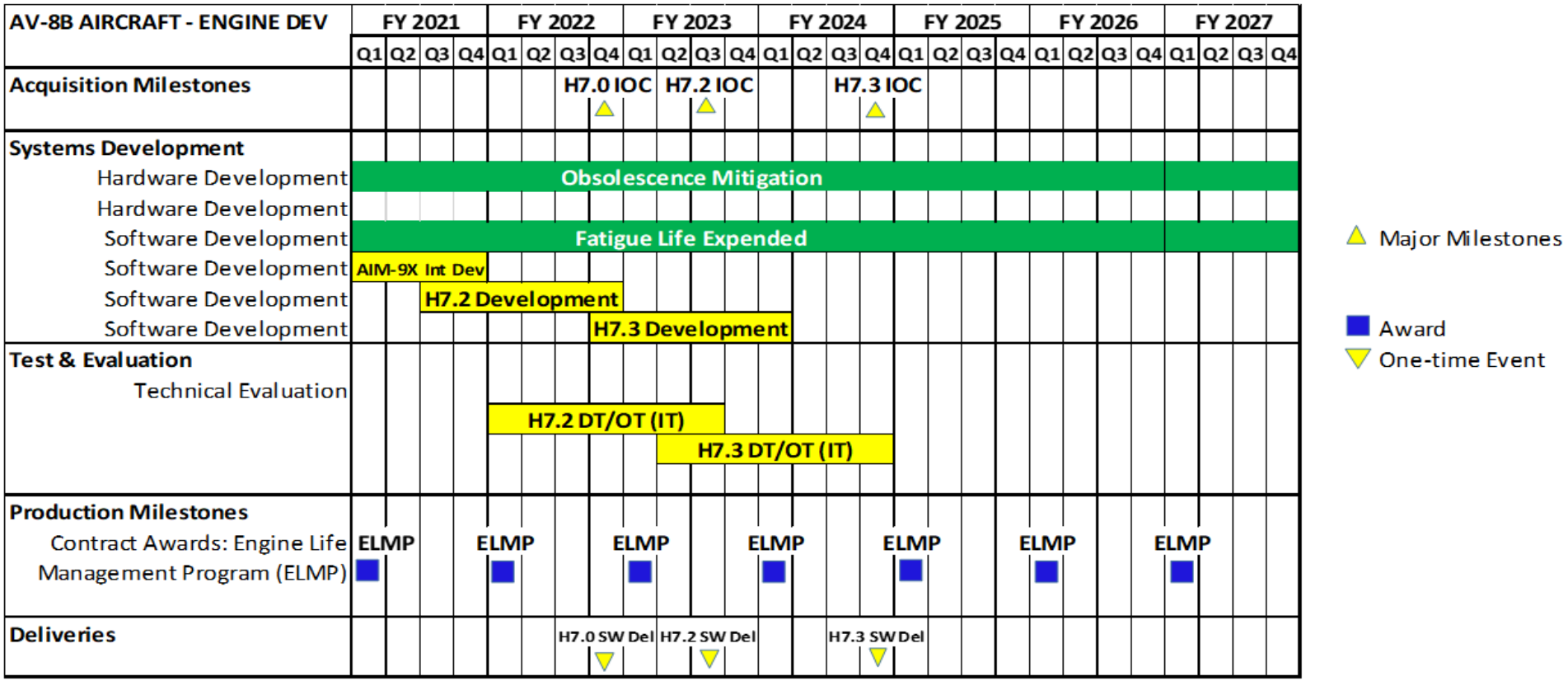

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214M / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AV-8B AIRCRAFT - ENGINE DEV				
Acquisition Milestones: H7.0 IOC	4	2022	4	2022
Acquisition Milestones: H7.2 IOC	3	2023	3	2023
Acquisition Milestones: H7.3 IOC	4	2024	4	2024
Systems Development: Hardware Development: AIM-9X Integration Development	1	2021	4	2021
Systems Development: Hardware Development: Obsolescence Mitigation Development	1	2021	4	2027
Systems Development: Software Development: H7.2 Development	3	2021	4	2022
Systems Development: Software Development: H7.3 Development	4	2022	1	2024
Systems Development: Software Development: Fatigue Life Expended Development	1	2021	4	2027
Test & Evaluation: Technical Evaluation: H7.2 DT/OT (IT)	4	2021	4	2022
Test & Evaluation: Technical Evaluation: H7.3 DT/OT (IT)	4	2022	1	2024
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY21	1	2021	1	2021
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY22	1	2022	1	2022
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY23	1	2023	1	2023
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY24	1	2024	1	2024
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY25	1	2025	1	2025
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY26	1	2026	1	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604214M / *AV-8B Aircraft - Engine Dev*	**Project (Number/Name)** 0652 / *AV-8B*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY27	1	2027	1	2027
Deliveries: H7.0 S/W Delivery	4	2022	4	2022
Deliveries: H7.2 S/W Delivery	3	2023	3	2023
Deliveries: H7.3 S/W Delivery	4	2024	4	2024