Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0605217N *I Common Avionics*							
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	220.717	52.789	77.960	81.076	-	81.076	61.122	67.146	60.709	49.016	Continuing	Continuing
0572: *JT Service/NV Std Avionics CP/SB*	220.717	52.789	77.960	81.076	-	81.076	61.122	67.146	60.709	49.016	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Such air combat electronics developments include communications and airborne networking, navigation and sensors, flight avionics, safety systems, and flight mission information systems for both forward fit and retrofit aircraft. These efforts continue to maintain federated systems while encouraging transition of procurements to support a modular system for enhanced performance and affordability. Consideration is given up front to reduce acquisition costs through larger procurement quantities that satisfy multi-aircraft customer requirements and that reduce life cycle costs in the areas of reliability, maintainability, and training.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

The total cost of the Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) (DI/MANGL) Middle Tier of Acquisition effort is $131.9 million, including RDT&E and procurement of prototype units. The DI/MANGL is fully funded through FY27.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	60.117	77.960	65.411	-	65.411
Current President's Budget	52.789	77.960	81.076	-	81.076
Total Adjustments	-7.328	0.000	15.665	-	15.665
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.704	0.000			
• SBIR/STTR Transfer	-1.624	0.000			
• Program Adjustments	0.000	0.000	15.259	-	15.259
• Rate/Misc Adjustments	0.000	0.000	0.406	-	0.406

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Change Summary Explanation

Program Adjustments of $15.259 million includes an increase for Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) HQMC technical correction from APN-5 to RDT&E (zero-sum) realignment to support Software Reconfigurable Payload (SRP) redesign and development for changes in Tactical Targeting Network Technology (TTNT) Dual Power Amplifier (DPA) and Link 16 waveform integration due to new Federal Aviation Administration (FAA) Link 16 certification requirements and fielding, as well as an increase of $0.406 million for various miscellaneous and rate adjustments.

Schedule:
Tactical Communications (TACCOM): Changes incorporated for software integration of evolving technical specifications in support of NSA driven crypto Mod mandates and waveform modernization efforts.
FY22: Changed Gen5 NSA Cert from 3Q/22 to 4Q/23; Updated nomenclature for Gen5/6 TSV 3.1.1 ECP Approval 1Q/22 to Gen5 TSV Ste B ECP Approval 1Q/22; Changed Gen6 Ver 004 Rel from 1Q/22 to 2Q/22.
FY23: Changed Gen5 JITC Cert from 1Q/23 to 2Q/24; Updated nomenclature for Gen5/6 Data link ECP Approval 4Q/23 to Gen5 TRANSEC ECP Approval and Changed to 1Q/24. Changed Gen5 Ver 008 Rel from 2Q/23 to 3Q/24.
FY24: Changed Gen6 NSA Cert from 2Q/24 to 4Q/24; Changed Gen6 JITC Cert from 4Q/24 to 2Q/25.
FY25: Changed Gen5 NSA Cert from 2Q/25 to 1Q/26; Changed Gen5 JITC Cert from 4Q/25 to 3Q/26.
FY26: Added Gen5 Crypto Mod TSV 4, SINCGARS 3.2 3Q/26 - 4Q/28.
FY27: Changed nomenclature from Gen6 JITC Cert 3Q/27 to Gen6 NSA Cert 3Q/27; Changed nomenclature from Gen6 NSA Cert 4Q/27 to Gen6 JITC Cert 4Q/27; Changed Gen6 Ver 006 Rel from 1Q/27 to 4Q/27.
FY28: Added FYDP requirements.

Ground Proximity Warning System/Terrain Awareness System (GPWS/TAWS II):
FY23: For T&E Developmental Testing, Updated nomenclature in 4Q/23 & 3Q/24 from Northrop Grumman/Bell Flight Integration Testing FB1 & FB2 to Northrop Grumman/Bell Helicopter Textron Int Testing FB1 & FB2.
FY27: Added V-22 ILA 4Q/27 - 2Q/28.
FY28: Added FYDP requirements.

Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL): Changes incorporated HQMC technical correction from APN-5 to RDT&E (zero-sum) realignment to support Software Reconfigurable Payload (SRP) redesign and development for changes in Tactical Targeting Network Technology (TTNT) Dual Power Amplifier (DPA) and Link 16 waveform integration due to new Federal Aviation Administration (FAA) Link 16 certification requirements and fielding. FY23 budget intended to purchase test articles was reinvested in the resolution of technical issues experienced in the development of key components in those test articles. On-going design and development activities continue to address and resolve fact-of-life technical issues in component design. Requested FY24 funding is required to complete and purchase the test articles and continue extended aircraft integration activity leading to FY25 Flight Demo. Schedule changes also allow for NSA certification of SRP and components to obtain fielding approvals.

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FY22: Changed Design Review from 1Q/22 to 3Q/23, updated nomenclature to Design Review #1; Nomenclature update from Seasite/MULE Lab/MV-22 SIL Prep/Test to MANGL Ground Node Prep/Test.
FY23: Changed MANGL Ground Node Prep/Test end date from 4Q/23 to 2Q/24; Changed Qual Testing from 1Q/23 - 4Q/23 to 2Q/24 - 4Q/24; Changed Cyber Security Tabletop from 3Q/23 to 2Q/24; Changed Delivery Test Art. Qty. 4 from 4Q/23 to 4Q/24.
FY24: Added Design Review #2 2Q/24; Changed CH-53K & KC-130J Rapid Prototype Approval from 1Q/24 to 2Q/24; Changed MV-22 Rapid Fielding Approval from 3Q/24 to 2Q/25; Changed MV-22 Integration end date from 2Q/24 to 1Q/25; Changed MV-22 Logistics Analysis end date from 2Q/24 to 1Q/25; Changed Flt Demo Test/Rpt from 1Q/24 - 2Q/24 to 1Q/25 - 2Q/25; Changed Delivery Test Art. Qty 3 from 2Q/24 to 1Q/25.
FY25: Changed CH-53K & KC-130J Flt Demo/Rpt from 2Q/25 - 4Q/25 to 3Q/25 - 4Q/25.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / *Common Avionics*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

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
0572: *JT Service/NV Std Avionics CP/SB*	220.717	52.789	77.960	81.076	-	81.076	61.122	67.146	60.709	49.016	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

(U) Common Avionics FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

A. Mission Description and Budget Item Justification

Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Standard avionics capabilities under
development include the Joint Service Review Committee for Avionics Standardization (JSRC-AS), Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Tactical Communications (TACCOM), Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II), Avionics Component Improvement Program (AvCIP), Avionics Architectures Team (AAT), Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL), and Common Mission Computing and Displays (CMCD). Participation in Human Factors Quality Management Board ensures Navy safety upgrades and mandatory safety improvements for naval aircraft.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.784	0.793	0.825	0.000	0.825
Articles:	-	-	-	-	-
Description: The JSRC-AS program supports Congressional and Assistant Secretary of the Navy for Research, Development and Acquisition direction to control the growing proliferation of unique avionics and improve coordination among the services through the identification, development, and promotion of investigative and development efforts across the services and U.S. Coast Guard. The JSRC-AS supports the development, analysis and review of new avionics requirements with potential for joint service application. The JSRC-AS consists of an O-6 Level principal from each service and U.S. Coast Guard, as well as the appropriate staff, to support joint service working group efforts.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Provide leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan. ***FY 2024 Base Plans:*** Provide leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.032 million from FY23 to FY24 is due to requirements change to support commonality for joint programs within JSRC-AS.					
Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)	0.128	0.144	0.147	0.000	0.147
Articles:	-	-	-	-	-
Description: This program will conduct and support CNS/ATM research, studies, development, integration, demonstration, test and evaluation efforts for Naval aviation platforms in development. Platform integration of Mode Select (S), 8.33 kHz, Reduced Vertical Separation Minimum (RVSM), Required Navigation Performance Area Navigation (RNP RNAV) to include M Code, and Automatic Dependent Surveillance-Broadcast Out (ADS-BO) functional integration and certification efforts into Naval aircraft. Assist with insertion of communication, navigation, surveillance, and supporting technologies and conduct capability certification on developmental platforms. Capabilities include Mode S, 8.33 kHz, RVSM, RNP RNAV, ADS-BO, and other civil and military capabilities. ***FY 2023 Plans:*** Continue to evaluate technologies and develop solutions to support platform integrations. ***FY 2024 Base Plans:*** Continue to evaluate technologies and develop solutions to support platform integrations. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
There is no significant change from FY23 to FY24.					
Title: Tactical Communications (TACCOM)	15.184	18.530	23.142	0.000	23.142
Articles:	-	-	-	-	-
Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure tactical communication systems and capabilities are developed and available to support naval aviation requirements. Perform tactical communication platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop tactical communications (voice/data) requirements, concepts and systems which have application across naval aviation. Support all necessary tasks to ensure evolution of legacy communications systems incorporating programmable Communication Security/Information Assurance, Transmission Security (TRANSEC) mandated National Security Agency (NSA) Advanced Crypto Capability (ACC) modernization initiatives, Tactical Secure Voice (TSV) Suite B, Combat Net Radio (CNR) Variable Message Format (VMF), Beyond Line-of-Sight, Satellite Communication (SATCOM) Modernization including Mobile User Objective System (MUOS), High Frequency, Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced SINCGARS Improvement Program (E-SIP), SINCGARS Cryptographic Modernization with TSV 3.1.2, civil interoperability, and data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform (IW), Intelligence Broadcast System over modern Code Division Multiple Access based satellite channels, Tactical Networks, Data Links, Link 16 and Link 22.					
FY 2023 Plans: Continue software development of Gen5A/Gen6 and address NSA driven specification change from TSV 3.1.1 to TSV 3.1.2 crypto modernization, Single Channel Ground and Airborne Radio System (SINCGARS 3.1.1), Advanced Crypto Capabilities (ACC) modernization, Mobile User Objective System (MUOS) 3.1 and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN Ed. 4). Attain Gen5 NSA Certification.					
FY 2024 Base Plans: Continue software development and execute NSA driven crypto algorithm changes for Gen5A/Gen6 TSV 3.1.2 crypto modernization, Single Channel Ground and Airborne Radio System (SINCGARS 3.1.1), Advanced Crypto Capabilities (ACC) modernization, Mobile User Objective System (MUOS) 3.2 and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN Ed. 4). Attain Gen5 JITC Certification. Attain approval of Gen5					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
TRANSEC ECP. Release Gen5 Ver 008. Initiate VMF/Data Link MIL Standard Evolution. Initiate Gen6 Crypto Mod, TSV 4.x, ACC 2.x, SATURN ed. 5 and MUOS 4.x. Attain Gen6 NSA Certification. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $4.612 million from FY23 to FY24 is due to cost associated with the NSA driven change in TSV specification from TSV 3.1.1 to TSV 3.1.2 and US Army change to SINCGARS specification from 3.1 to a 3.1.1 version. In addition, initiating parallel requirements for VMF/Data link Standard Evolution and Gen6 Crypto Mod, TSV 4.x, ACC 2.x, SATURN ed. 5, MUOS 4.x.					
Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II)	5.198	8.362	6.302	0.000	6.302
Articles:	-	-	-	-	-
Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet naval aviation GPWS/TAWS II requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform GPWS/TAWS II platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop GPWS/TAWS II solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring. Evaluate aircraft simulation models for suitability in GPWS/TAWS II development effort. Develop GPWS/TAWS II algorithms utilizing simulation environments as real-time hardware and pilot in the loop tool. Develop and evaluate algorithm interfaces necessary for integration of the algorithm within platform host computer. Develop software code to execute GPWS/TAWS II algorithm in host platforms. ***FY 2023 Plans:*** Deliver H-60 TAWS II FB4. Complete H-1 TAWS II Requirements Development. Award H-1 Integration contract. Complete H-1 TAWS II Software Development for FB1. Complete Lockheed Martin SC-2X Integration Testing FB4. Initiate Northrop Grumman/Bell Helicopter Textron Integration Testing FB1. Complete H-60 TAWS II DT4. Complete Integrated Logistics Assessment for H-60 TAWS II. Deliver H-1 TAWS II FB1. ***FY 2024 Base Plans:*** Obtain H-60 MS C. H-60 Fleet Release. Complete H-1 TAWS II DT1. Complete H-1 TAWS II Software Development for FB2. Complete Integrated Logistics Assessment for H-1 TAWS II. Begin V-22 TAWS II Requirements Development (restart). Complete Northrop Grumman / Bell Helicopter Textron Integration Testing					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FB1. Start and complete Northrop Grumman / Bell Helicopter Textron Integration Testing FB2. Begin H-1 TAWS II DT2. H-1 TAWS II FB2 Delivery. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $2.06 million from FY23 to FY24 is due to the completion of the H-60 TAWS II Developmental Testing in FY23, and because the H-60 TAWS II effort will be completing in FY24.					
Title: Avionics Component Improvement Program (AvCIP)	4.494	5.186	5.150	0.000	5.150
Articles:	-	-	-	-	-
Description: Investigate high value Return On Investment component improvement candidate projects. Design and develop solutions that correct avionics systems reliability, performance and sustainment deficiencies in support of NAVAIR Commander's Strategic Imperatives of 'Aligning existing resources to better support today's Readiness' and 'Increase Speed of Products to the Fleet.' Stop operating and sustainment cost growth by reducing costs for fielded systems and implementing life-cycle cost reduction initiatives as part of new systems development. This program positions resources for next year application to fast-track corrections to existing problematic aviation electronics systems. Projects address critical readiness issues (significant back-orders or impending sustainability failures that threaten to down aircraft), functional performance obsolescence issues (system failing to support mission requirement), and top sustainment cost drivers (out of proportion annual maintenance or repair costs). Resources enable design and development of technology insertion and product redesign or replacement to meet readiness goals, meet mission objectives, or reduce overall sustainment costs. Candidate projects are submitted via a rigorous template, reviewed by a panel of Avionics professionals, and selected based upon urgency, warfighting contributions, breadth of application and scope of Return On Investment. Resources cover non-recurring engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). ***FY 2023 Plans:*** Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2024 Base Plans:***					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** There is no significant change from FY23 to FY24.					
Title: Avionics Architecture Team (AAT) ***Articles:*** ***Description:*** The Avionics Architecture Team (AAT) provides hardware and software (HW/SW) standards, product line development, and management for common HW/SW operating environments. AAT is chartered to facilitate NAVAIR's compliance with the Modular Open Systems Approach (MOSA) requirements in accordance with 10 U.S.C. 2446a-2446c; FY17 National Defense Authorization Act (NDAA) Section 805 Modular Open Systems Approach in Development of Major Weapon Systems, 23 Dec 2016; Tri-Service Memorandum for Service Acquisition Executives and Program Executive Officers, 07 Jan 2019; DoDI 5000.02 Operation of the Adaptive Acquisition Framework, 23 Jan 2020; FY21 NDAA Sec. 804 - Implementation of Modular Open Systems Architecture requirements, 01 Jan 2021; and SECNAVINST 5000.2G, Implementation of the Defense Acquisition System and the Adaptive Acquisition Framework, 08 Apr 2022. The Software Open Systems Technologies (SWOST) team manages the Future Airborne Capability Environment (FACE[TM]) Technical Standard, which is developed with the joint collaboration between the Navy, Army, Air Force, industry and academia in accordance with Public Law 104-113. The Hardware Open Systems Technologies team includes the Hardware Open Systems Technologies (HOST) standard, which is developed through government and academia collaboration and is provided to industry for prototyping and implementation efforts. The Functional Architecture for Strategic Reuse (FASTR) initiative, through Platform Integration and Modeling, will define a standard process for mission level capability decomposition to support product line development and management. The AAT provides Subject Matter Experts to define and architect a set of Open Architecture Standards and product lines, design principles and guidance, development and integration tools, acquisition strategy, contracting guidance and cost estimates. The AAT also provides Subject Matter Experts directly to weapons systems/platforms to support inclusion of Open Architecture Standards in the early stages of life cycle development. The results will enable Department of Defense (DoD) weapons systems/platforms to systematically procure open, modular and reconfigurable software architectures, reuse HW/SW, and deliver scalable, portable and interoperable warfighting capabilities at a faster rate, reducing redundant development costs, and increasing competition. Infrastructure components and frameworks built to these standards	8.430 -	10.370 -	10.609 -	0.000 -	10.609 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
will support capability upgrades on various platforms by enabling integration of common, non-proprietary applications. The AAT initiatives enable the government's role as Lead Systems Integrator, per the Weapons System Acquisition Reform Act (WSARA) 2009, and cost effectively manage data rights for reuse across the DoD. ***FY 2023 Plans:*** Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance, and demonstrate interoperability of the standards. Generate revisions for future editions of the Future Airborne Capability Environment (FACE) Technical Standard based on issues identified by government and industry consortium and develop corresponding conformance tools. Incorporate new hardware technologies and develop Tier 2 HOST specifications to support widely adopted commercial technologies and to integrate with platform requirements. Provide input to platforms developing Tier 3 and Tier 4 HOST specifications. Implement Small Form Factor standards into the HOST environment, supporting UAV and other type platforms. Assist platforms with strategies for modular functional architectures and implementation of FACE and HOST standards. Participate in international collaboration efforts to define comprehensive open architecture strategy. Provide Naval Air Enterprise Subject Matter Expertise and documentation support for OSD's Modular Systems Working Group, supporting Congressional and DoD directed Open Architecture development. Generate alignment strategies for a comprehensive open architecture approach between Navy, Army, Air Force and international partners. Support the implementation of Naval Aviation's data model strategy. Provide Subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for Future Airborne Capability Environment (FACE), Functional Architecture for Strategic Reuse (FASTR) and Hardware Open Systems Technologies (HOST) initiatives. ***FY 2024 Base Plans:*** Provide development, mission based engineering, systems engineering and program management support for design and implementation guidance of open standards while demonstrating their interoperability. Generate revisions for future editions of the Future Airborne Capability Environment (FACE) Technical Standard based on issues identified by government and industry consortium while facilitating the transition of FACE maintenance from the government to industry. Incorporate new hardware technologies and maintain Tier 3 HOST specifications to support widely adopted commercial technologies and to integrate with platform requirements. Provide input to platforms developing Tier 3 and Tier 4 HOST specifications. Implement Small Form Factor standards into the HOST environment, supporting UAV and other small platforms. Assist platforms with strategies for modular functional architectures and implementation of open architecture standards. Develop HOST Conformance Test procedures and tools to verify conformance to the published HOST standard.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Participate in international collaboration efforts to define a comprehensive open architecture strategy. Provide Naval Air Enterprise Subject Matter Expertise and documentation support for OSD's Modular Systems Working Group, supporting Congressional and DoD directed Open Architecture development. Generate alignment strategies for a comprehensive open architecture approach between Navy, Army, Air Force and international partners. Support the implementation of Naval Aviation's data model strategy. Provide Subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for Future Airborne Capability Environment (FACE), Functional Architecture for Strategic Reuse (FASTR) and Hardware Open Systems Technologies (HOST) initiatives. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.239 million from FY23 to FY24 is for the development of HOST Conformance Test procedures and tools.					
Title: Common Mission Computing and Displays (CMCD) ***Articles:*** ***Description:*** The Common Mission Computing and Displays (CMCD) program enables the development, procurement, integration, test and fielding of common capabilities through the use of commercial off the shelf mission computing and displays products as part of the CMCD family of systems across multiple platforms. As part of CMCD, the Mission Computer Alternative (MCA) provides for a current state technology common mission computing baseline across multiple legacy aircraft platforms to include the T-45 Goshawk, F/A-18E/F, EA-18G and E-2D Hawkeye. MCA allows for Technology Refresh and cyber protection activities to be conducted throughout the life cycle of the mission computer in the Multi-Use Laboratory Environment (MULE) in a proactive manner. The MULE will also evaluate cyber solutions in accordance with the processes defined in the Risk Management Framework for cyber protections. Mission Computer Alternative (MCA) will enable platforms to remain relevant and quickly gain a tactical edge with new capabilities without waiting years for the traditional mission computer redesign, test and fielding process. Also, part of the CMCD program is the Common Display Alternatives (CDA) initiative to increase pilot tactical and situational awareness and improve the man-machine interface for naval aviators. The CDA initiative evaluates military aircraft platform requirements and commercial aircraft display products for applicability to those military aircraft platforms. Commercial displays are known for their high reliability and the incorporation of the latest technologies. ***FY 2023 Plans:***	0.460 -	0.515 -	1.515 -	0.000 -	1.515 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Conduct assessments of MCA platform processing needs through organic based MULE lab activities to enhance the MCA and cyber protection capabilities. Initiate planning for Technology and Capability Insertions and leveraging those capabilities across multiple legacy platforms. Conduct an evaluation of the T-45 MCA processing requirements in support of the platform's plan for integrating the replacement HUD in the cockpit. Identify and evaluate potential replacement processors, new interfaces and increased memory needs. ***FY 2024 Base Plans:*** Conduct assessments of Mission Computer Alternative (MCA) and Mission Computer Adjunct Processor (MCAP) platform processing needs through organic based Multi-Use Laboratory Environment (MULE) lab activities to enhance the MCA and cyber protection capabilities. Continue planning for software and hardware interoperability by leveraging Technology and Capability insertion capabilities across multiple legacy platforms. Identify and evaluate technical refreshes of components such as potential replacement processors, new interfaces and increased memory needs. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $1.0 million is for the MULE analysis of interoperability and technical refreshes of components within the MCA to validate readiness of full operation capability.					
Title: Digital Interoperability (DI) / Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) ***Articles:*** ***Description:*** Digital Interoperability (DI) is the United States Marine Corps' strategy to bridge multiple generations of technology using three matured technologies; gateways, software defined radios, and Commercial Off-The-Shelf (COTS) interfaces. This modular developmental approach enables iterative migration to advanced waveforms and payloads while providing enhanced digital connectivity between forces using dissimilar technologies. DI will enable fleet integration of new capabilities on COTS tablets and Government Off-The-Shelf (GOTS) applications. DI will also enable logistics tracking and reporting (cargo and personnel) with the use of Radio Frequency Identification technology, advanced Electronic Warfare/Cyber capability, and threat data capturing/off-boarding. The architecture establishes the foundation to enable system performance data off-boarding, as well as data fusion and artificial intelligence augmentation capabilities. Development and testing of MANGL components, to include Software Reconfigurable Payload (SRP), gateways and tablets, in Hub and Spoke configurations for MV-22B. Translates messages from one tactical data link to	18.111 3	34.060 -	33.386 7	0.000 -	33.386 7

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
another (i.e. Link 16 to Adaptive Networking Wideband Waveform [ANW2]) with a tactically proven gateway, thereby leveraging previous investments. Provides the foundation for Command, Control, Communications, Electromagnetic Spectrum Operations, and Intelligence exploitation of platform/sensor data off-boarding, data fusion, and distributed processing. Enables real-time blue force situational awareness and improved decision-making through the sharing of a Common Operational Picture, including friendly force positions, capabilities, and threat information for both the aircrew and embarked troops. Provides for operations in denied and degraded environments, enables range extension and distributed operations. SRP 2.0 is a single common payload module that is government configuration controlled architecture, and reconfigurable to support simultaneous missions and applications making maximum use of available bandwidth and ensuring interoperability all with a cyber-secure, National Security Agency (NSA) approved, cryptographic solution. There are earlier versions of the SRP (1.0 and 1.5) operationally deployed in other naval platforms. SRP 2.0 provides an imminently upgradable platform for eventual inclusion of Low Probability of Intercept (LPI)/ Low Probability of Detection (LPD) and advanced mesh waveforms for the exchange of tactical data, imagery, and video. Incorporation of new waveforms can be accomplished within 18 months vice the 36 to 48 months required for integration and initial fielding using traditional approaches. ***FY 2023 Plans:*** Complete Design Review #1. Continue with MV-22 integration and logistics analysis. Continue MANGL Ground Node Prep/Test. ***FY 2024 Base Plans:*** Complete Design Review #2. Obtain CH-53K & KC-130J Prototype Approval. Continue with MV-22 integration and logistics analysis. Initiate CH-53K and KC-130J integration and logistics analysis. Award contract for seven (7) MANGL test articles. Complete MANGL Ground Node Prep/Test. Initiate and complete Qual Testing and Cyber Security Tabletop. Continue Middle Tier of Acquisition Prototyping effort to design, develop and deliver four (4) MANGL test articles. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.674 million from FY23 to FY24 is due to leveraging lead platforms efforts, realizing efficiencies in the follow-on platforms.					
Accomplishments/Planned Programs Subtotals	52.789	77.960	81.076	0.000	81.076

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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C. Other Program Funding Summary ($ in Millions)

Line Item	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
• APN/0577: *Common Avionics Changes*	102.861	128.120	136.199	-	136.199	258.943	264.323	308.865	347.149	1,841.037	6,408.036

Remarks

D. Acquisition Strategy

Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) program is a system of systems. The program will encompass the integration of various systems which will be procured utilizing existing contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Tactical Communications (TACCOM) is utilizing a firm fixed price contract to Collins Aerospace for research and development of the ARC-210 Gen 5/6 and other Navy contract vehicles for integration studies. The Navy will integrate systems and components to satisfy platform requirements to achieve tactical communication capability as determined by analyses. Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Component Improvement Program (AvCIP) will annually review, compete and select candidate component improvement proposals according to urgency, criticality of warfighting contributions, technical risk, breadth of application, and scope of Return On Investment (ROI). Projects are selected by a panel of Avionics management experts, including representatives from OPNAV N98, HQMC AWS, NAVAIR, NAVSUP, and the Fleet. Projects are executed by managers in platform or commodity offices that own the component. The AvCIP program management team manages project selection, allocates funds, monitors multiple project executions against proposed spend plans, and tracks solution performance and achievement of projected ROIs over time using Fleet maintenance and component performance databases. Cost avoidances are coordinated with OPNAV N98 to balance Flying Hour Program costs. Component improvement solutions include modular hardware, software and material upgrades. Resources cover engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Avionics Architectures Team (AAT) will provide acquisition strategy guidance and direct support to weapon systems/platforms implementing open systems architectures to address open architecture requirements and to conform to public law. Common Mission Computing and Displays (CMCD) enables the development, test and fielding of common capabilities through the use of commercial off the shelf mission computing and displays products across multiple platforms through the Multi-Use Laboratory Environment. Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) is approved as a Middle Tier Rapid Prototyping/Rapid Fielding Program. An Other Transaction Authority (OTA) contracting strategy is being used to fund the prototype and procure test and lab assets. The MANGL prototype will integrate upgraded system components previously fielded by other initiatives with a government developed software reconfigurable payload.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev	Various	Various : Various	27.207	2.643	Jan 2022	4.914	Jan 2023	4.906	Jan 2024	-		4.906	Continuing	Continuing	Continuing
Primary Hardware Dev	WR	NAWCAD : Patuxent River, MD	1.798	0.540	Nov 2021	1.819	Nov 2022	2.181	Nov 2023	-		2.181	Continuing	Continuing	Continuing
Primary Hardware Dev DI/ MANGL	MIPR	NRL : Washington, DC	12.731	6.779	Jan 2022	11.041	Jan 2023	10.708	Jan 2024	-		10.708	0.000	41.259	41.259
Primary Hardware Dev DI/ MANGL	SS/FFP	Collins Aerospace : Cedar Rapids, IA	0.000	3.195	May 2022	7.650	May 2023	0.000		-		0.000	0.000	10.845	10.845
Primary Hardware Dev DI/ MANGL	SS/FFP	Kranze Technology Solutions : Prospect Heights, IL	2.366	4.148	May 2022	0.000		0.000		-		0.000	0.000	6.514	6.514
Aircraft Integration DI/ MANGL	SS/FFP	Kranze Technology Solutions : Prospect Heights, IL	0.000	0.000		10.253	Dec 2022	17.632	Dec 2023	-		17.632	0.000	27.885	27.885
Aircraft Integration TACCOM	SS/FFP	Collins Aerospace : Cedar Rapids, IA	40.413	8.540	Jan 2022	10.341	Jan 2023	14.362	Jan 2024	-		14.362	0.000	73.656	73.656
Aircraft Integration GPWS/ TAWS II	SS/CPIF	Lockheed Martin : Owego, NY	1.741	1.285	Nov 2021	2.215	Nov 2022	1.922	Nov 2023	-		1.922	0.000	7.163	7.163
Systems Engineering AAT	MIPR	CCDC/UARC : Huntsville, AL	1.479	1.714	Jan 2022	1.700	Jan 2023	1.742	Jan 2024	-		1.742	0.000	6.635	6.635
Systems Engineering TACCOM	WR	NAWCAD : Patuxent River, MD	10.383	2.170	Nov 2021	2.029	Nov 2022	2.310	Nov 2023	-		2.310	Continuing	Continuing	Continuing
Systems Engineering	Various	Various : Various	12.449	2.184	Dec 2021	2.525	Dec 2022	2.454	Dec 2023	-		2.454	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	3.908	2.272	Nov 2021	1.285	Nov 2022	2.548	Nov 2023	-		2.548	Continuing	Continuing	Continuing
Prior Yr Product Dev no longer funded in FYDP	Various	Various : Various	26.943	0.000		0.000		0.000		-		0.000	0.000	26.943	26.943
		Subtotal	141.418	35.470		55.772		60.765		-		60.765	Continuing	Continuing	N/A

Remarks

Primary Hardware Dev NAWCAD increase from FY23 to FY24 is due to the restart for V-22 TAWS II Requirements Development.
Primary Hardware Dev DI/MANGL NRL & Collins Aerospace decrease from FY23 to FY24 is due to internal realignment to A/C Integration to support SRP integration of the MANGL prototype for MV-22/CH-53-K/KC-130J Platforms.
A/C Integration DI/MANGL increase from FY23 to FY24 is due to the additional Platforms (CH-53K/KC-130J) to include Lead Platform (MV-22).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / *Common Avionics*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A/C Integration TACCOM increase from FY23 to FY24 is due to NSA driven change in TSV specification from TSV 3.1.1 to TSV 3.1.2 and US Army change to SINCGARs specification from 3.1 to a 3.1.1 version. In addition, initiating parallel requirements for VMF/Data link Standard Evolution and Gen6 Crypto Mod, TSV 4.x, ACC 2.x, SATURN ed. 5, MUOS 4.x. A/C Integration GPWS/TAWS II decrease from FY23 to FY24 is due to the completion of H-60 GPWS/TAWS II DT 4. Systems Engineering TACCOM NAWCAD increase from FY23 to FY24 is due to NSA driven change in TSV specification from TSV 3.1.1 to TSV 3.1.2 and US Army change to SINCGARs specification from 3.1 to a 3.1.1 version. In addition, initiating parallel requirements for VMF/Data link Standard Evolution and Gen6 Crypto Mod, TSV 4.x, ACC 2.x, SATURN ed. 5, MUOS 4.x. Systems Engineering NAWCAD increase from FY23 to FY24 is due to the MULE analysis of interoperability and technical refreshes of components within the MCA to validate readiness of full operation capability.														

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development TACCOM	SS/FFP	Collins Aerospace : Cedar Rapids, IA	0.833	0.057	Mar 2022	1.316	Mar 2023	1.500	Mar 2024	-		1.500	0.000	3.706	3.706
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	3.725	0.929	Nov 2021	1.317	Nov 2022	1.492	Nov 2023	-		1.492	Continuing	Continuing	Continuing
Support Development	Various	Various : Various	1.319	0.100	Jan 2022	0.000		1.000	Nov 2023	-		1.000	0.000	2.419	2.419
		Subtotal	5.877	1.086		2.633		3.992		-		3.992	Continuing	Continuing	N/A

Remarks

Software Development TACCOM increase from FY23 to FY24 is due to NSA driven change in TSV specification from TSV 3.1.1 to TSV 3.1.2 and US Army change to SINCGARs specification from 3.1 to a 3.1.1 version. In addition, initiating parallel requirements for VMF/Data link Standard Evolution and Gen6 Crypto Mod, TSV 4.x, ACC 2.x, SATURN ed. 5, MUOS 4.x.
Integrated Logistics Support NAWCAD increase from FY23 to FY24 is due to DI/MANGL ILS support for CH-53K/KC-130J Platforms.
Support Development V/V increase from FY23 to FY24 is due to DI/MANGL ILS support for CH-53K/KC-130J Platforms.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	4.469	1.169	Nov 2021	3.391	Nov 2022	1.320	Nov 2023	-		1.320	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	2.646	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	7.115	1.169		3.391		1.320		-		1.320	Continuing	Continuing	N/A

Remarks

Dev Test & Evaluation decrease from FY23 to FY24 is due to completion of H-60 GPWS/TAWS II DT 4 and DI/MANGL Ground Node Prep/Test.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : Various	14.248	2.350	Jan 2022	4.829	Jan 2023	2.306	Jan 2024	-		2.306	Continuing	Continuing	Continuing
Contractor Engineering Support TACCOM	C/CPFF	Precise : Lexington Park, MD	7.353	1.005	Dec 2021	1.275	Dec 2022	1.300	Dec 2023	-		1.300	0.000	10.933	10.933
Contractor Engineering Support AAT	C/CPFF	Precise : Lexington Park, MD	10.372	2.800	Dec 2021	2.904	Dec 2022	3.224	Dec 2023	-		3.224	0.000	19.300	19.300
Contractor Management Support	Various	Various : Various	3.056	1.538	Dec 2021	0.679	Dec 2022	1.371	Dec 2023	-		1.371	Continuing	Continuing	Continuing
Contractor Management Support AAT	C/CPFF	Precise : Lexington Park, MD	2.317	0.580	Dec 2021	0.600	Dec 2022	0.000		-		0.000	0.000	3.497	3.497
Contractor Management Support DI/MANGL	C/CPFF	Precise : Lexington Park, MD	0.482	1.086	Dec 2021	0.000		1.294	Dec 2023	-		1.294	0.000	2.862	2.862
Government Engineering Support	WR	NUWC : Keyport, WA	0.613	0.000	Nov 2021	0.049	Nov 2022	0.000		-		0.000	0.000	0.662	0.662
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	4.895	0.782	Nov 2021	0.848	Nov 2022	0.861	Nov 2023	-		0.861	Continuing	Continuing	Continuing
Government Engineering Support AAT	WR	NAWCAD : Patuxent River, MD	7.456	1.405	Nov 2021	1.991	Nov 2022	1.746	Nov 2023	-		1.746	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Patuxent River, MD	14.507	3.480	Nov 2021	2.937	Nov 2022	2.847	Nov 2023	-		2.847	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various : Various	0.133	0.000		0.002	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Travel	WR	NAVAIR : Patuxent River, MD	0.125	0.038	Feb 2022	0.050	Feb 2023	0.050	Feb 2024	-		0.050	Continuing	Continuing	Continuing
Prior Yr Mgmt Svcs no longer funded in FYDP	Various	Various : Various	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	0.750
		Subtotal	66.307	15.064		16.164		14.999		-		14.999	Continuing	Continuing	N/A

Remarks

Contractor Engineering Support and Contractor Management Support overall increases/decreases from FY23 to FY24 are for contract realignment of support due to personnel movements.
Government Engineering Support NUWC decrease from FY23 to FY24 is due to AVCIP project completion.
Government Engineering Support AAT decrease from FY23 to FY24 is due to personnel movements/attrition.
Program Management Support decrease from FY23 to FY24 is due to personnel movements/attrition.

	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	220.717	52.789		77.960		81.076		-		81.076	Continuing	Continuing	N/A

Remarks

(U) Common Avionics FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

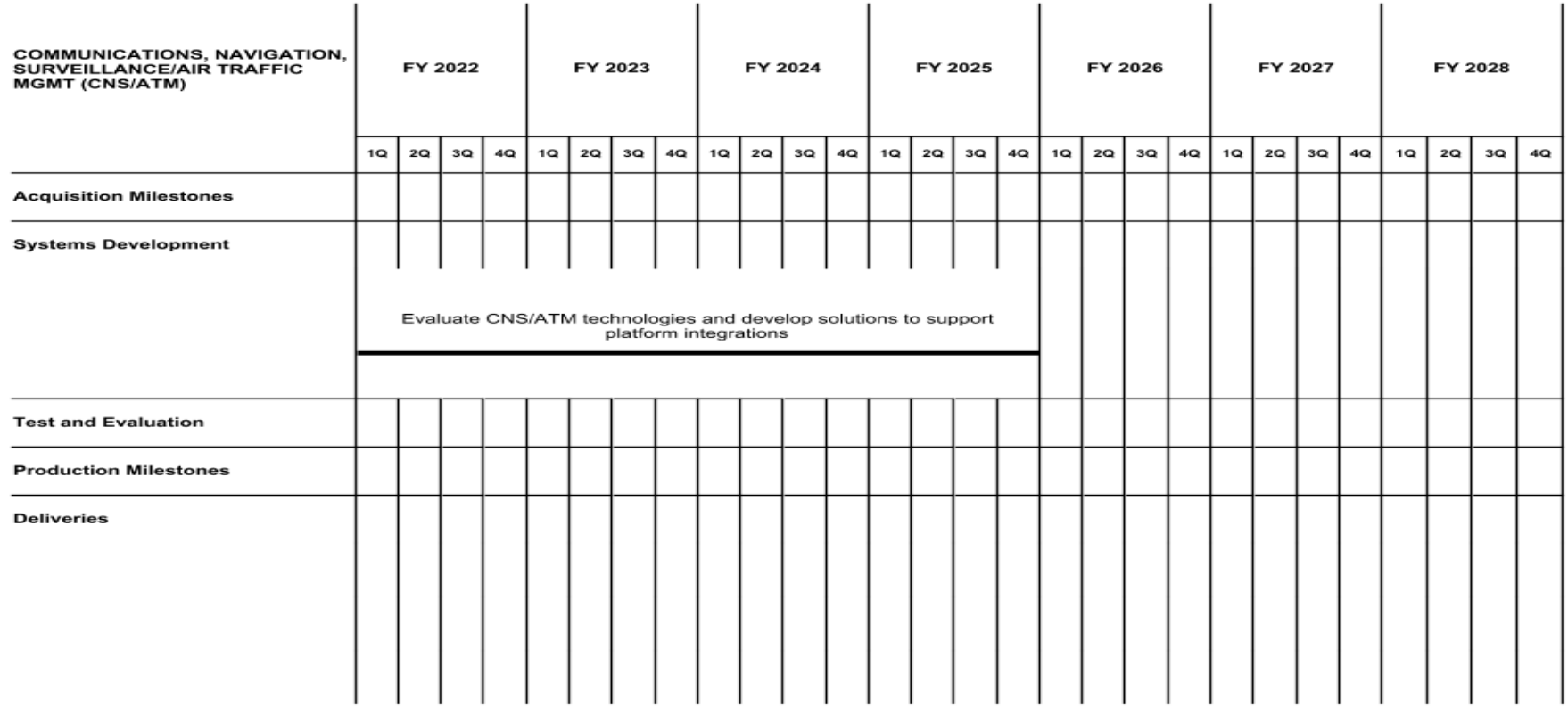

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

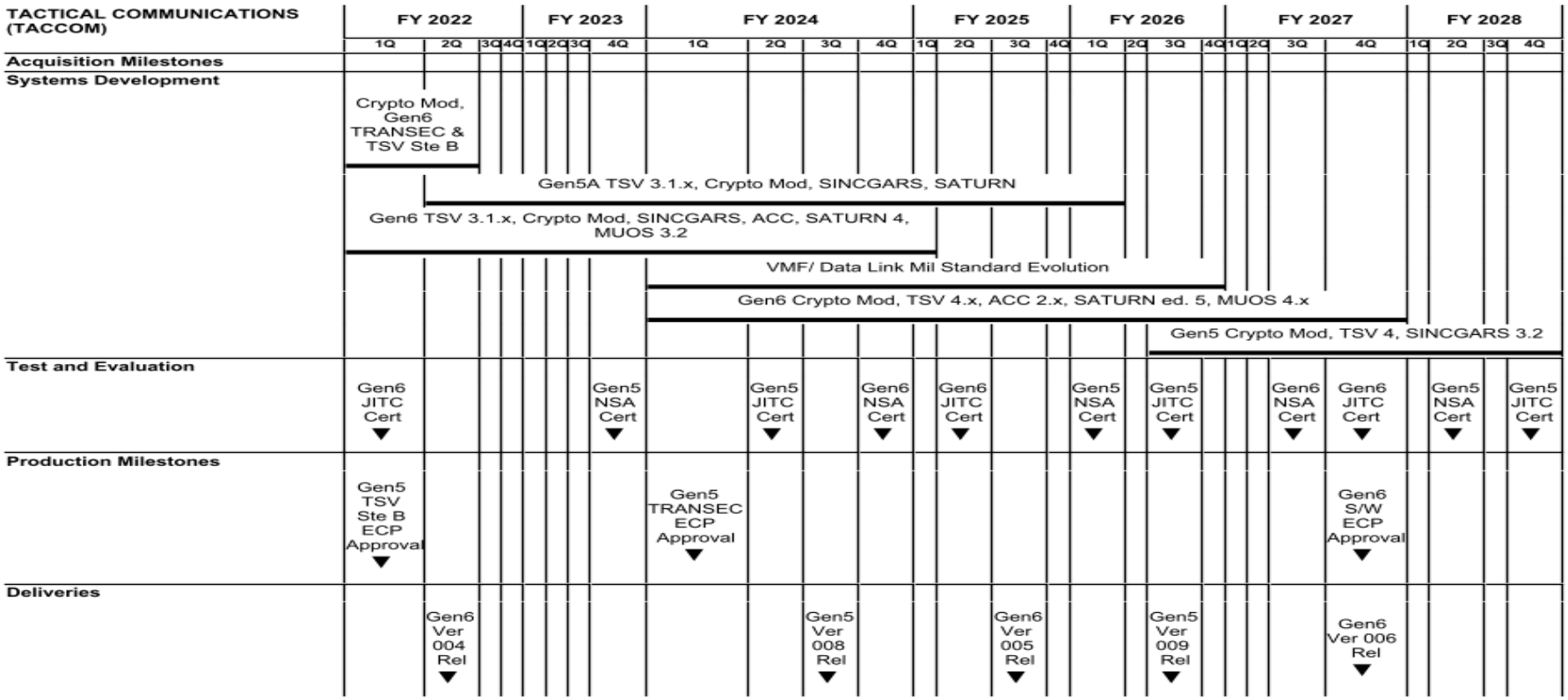

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

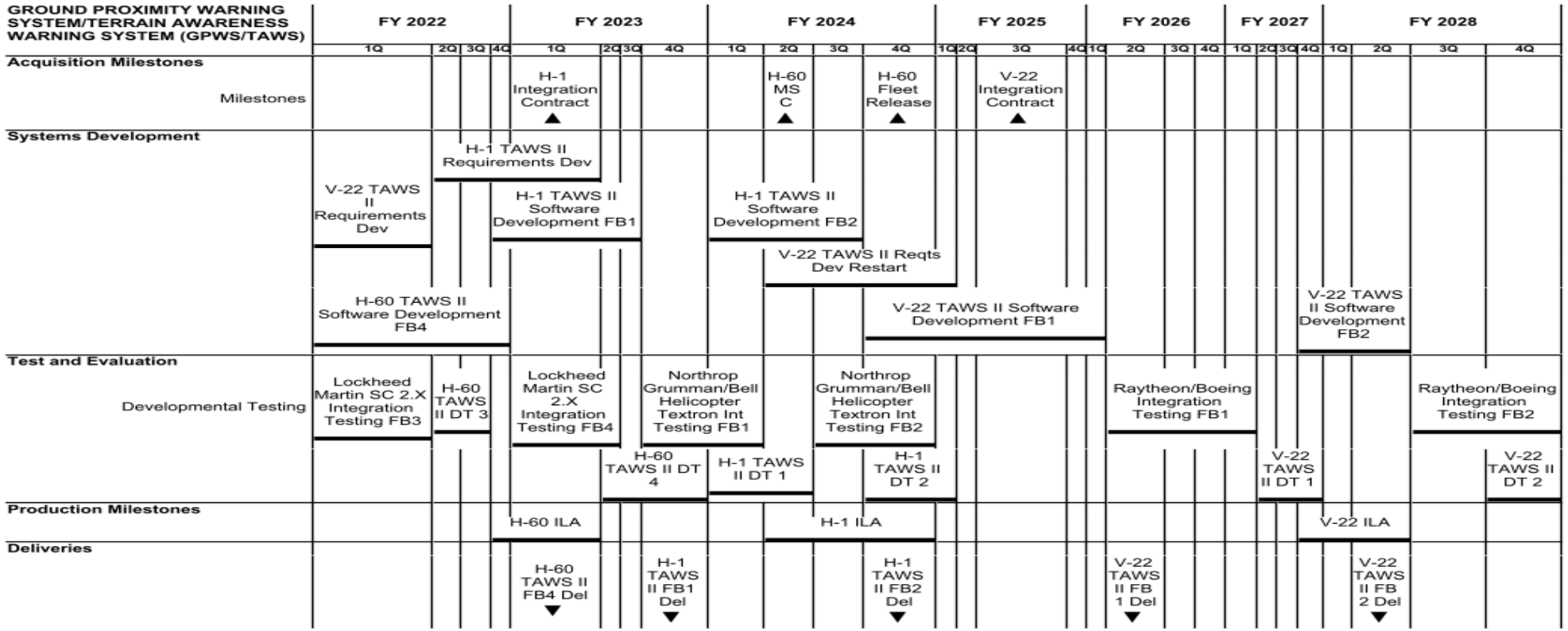

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

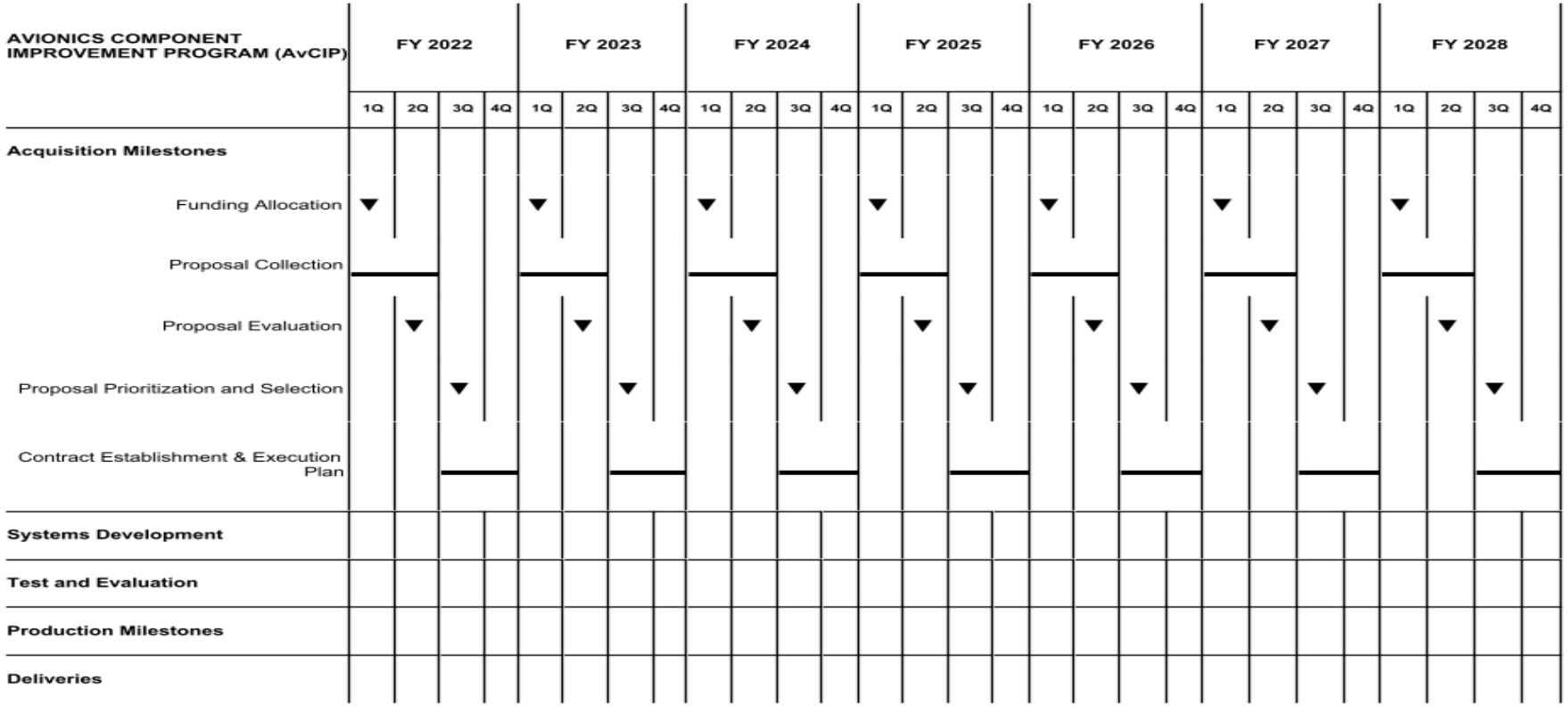

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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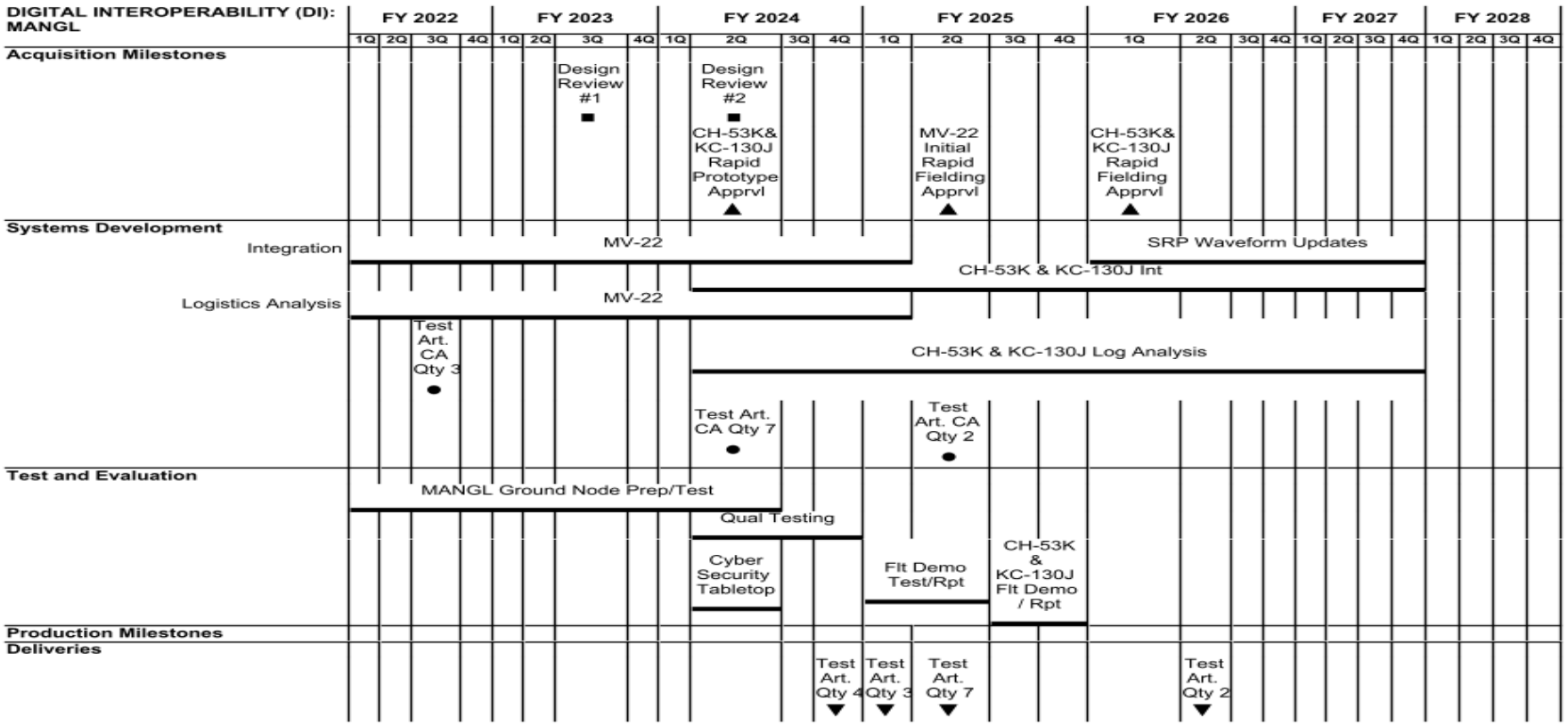

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMMUNICATIONS, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ ATM)				
Systems Development: Evaluate CNS/ATM technologies and develop solutions to support platform integrations	1	2022	4	2025
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: Crypto Modernization, Gen6 TRANSEC & TSV Suite B	1	2022	2	2022
Systems Development: Gen5A TSV 3.1.x, Crypto Modernization, SINCGARS, SATURN	2	2022	1	2026
Systems Development: Gen6 TSV 3.1.x, Crypto Modernization, SINCGARS, ACC, SATURN 4, MUOS 3.2	1	2022	1	2025
Systems Development: VMF/ Data Link Mil Standard Evolution	1	2024	4	2026
Systems Development: Gen6 Crypto Mod, TSV 4.x, ACC 2.x, SATURN ed. 5, MUOS 4.x	1	2024	4	2027
Systems Development: Gen5 Crypto Mod, TSV 4, SINCGARS 3.2	3	2026	4	2028
Test and Evaluation: Gen6 JITC Cert 5	1	2022	1	2022
Test and Evaluation: Gen5 NSA Cert 5	4	2023	4	2023
Test and Evaluation: Gen5 JITC Cert 6	2	2024	2	2024
Test and Evaluation: Gen6 NSA Cert 6	4	2024	4	2024
Test and Evaluation: Gen6 JITC Cert 7	2	2025	2	2025
Test and Evaluation: Gen5 NSA Cert 7	1	2026	1	2026
Test and Evaluation: Gen5 JITC Cert 8	3	2026	3	2026
Test and Evaluation: Gen6 NSA Cert 8	3	2027	3	2027
Test and Evaluation: Gen6 JITC Cert 8	4	2027	4	2027
Test and Evaluation: Gen5 NSA Cert 9	2	2028	2	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: Gen5 JITC Cert 9	4	2028	4	2028
Production Milestones: Gen5 TSV Ste B ECP Approval	1	2022	1	2022
Production Milestones: Gen5 TRANSEC ECP Approval	1	2024	1	2024
Production Milestones: Gen6 S/W ECP Approval	4	2027	4	2027
Deliveries: Gen6 Ver 004 Release	2	2022	2	2022
Deliveries: Gen5 Ver 008 Release	3	2024	3	2024
Deliveries: Gen6 Ver 005 Release	3	2025	3	2025
Deliveries: Gen5 Ver 009 Release	3	2026	3	2026
Deliveries: Gen6 Ver 006 Release	4	2027	4	2027
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				
Acquisition Milestones: Milestones: H-1 Integration Contract	1	2023	1	2023
Acquisition Milestones: Milestones: V-22 Integration Contract	3	2025	3	2025
Acquisition Milestones: Milestones: H-60 MS C	2	2024	2	2024
Acquisition Milestones: Milestones: H-60 Fleet Release	4	2024	4	2024
Systems Development: H-1 TAWS II Requirements Development	2	2022	1	2023
Systems Development: H-1 TAWS II Software Development FB1	4	2022	3	2023
Systems Development: H-1 TAWS II Software Development FB2	1	2024	3	2024
Systems Development: V-22 TAWS II Requirements Development	1	2022	1	2022
Systems Development: V-22 TAWS II Requirements Development Restart	2	2024	1	2025
Systems Development: V-22 TAWS II Software Development FB1	4	2024	1	2026
Systems Development: V-22 TAWS II Software Development FB2	4	2027	2	2028
Systems Development: H-60 TAWS II Software Development FB4	1	2022	4	2022
Test and Evaluation: Developmental Testing: Lockheed Martin SC 2.X Integration Testing FB3	1	2022	1	2022
Test and Evaluation: Developmental Testing: Lockheed Martin SC 2.X Integration Testing FB4	1	2023	2	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: Developmental Testing: Northrop Grumman/Bell Helicopter Textron Integration Testing FB1	4	2023	1	2024
Test and Evaluation: Developmental Testing: Northrop Grumman/Bell Helicopter Textron Integration Testing FB2	3	2024	4	2024
Test and Evaluation: Developmental Testing: Raytheon/Boeing Integration Testing FB1	2	2026	1	2027
Test and Evaluation: Developmental Testing: Raytheon/Boeing Integration Testing FB2	3	2028	4	2028
Test and Evaluation: Developmental Testing: H-60 TAWS II DT 3	2	2022	3	2022
Test and Evaluation: Developmental Testing: H-60 TAWS II DT 4	2	2023	4	2023
Test and Evaluation: Developmental Testing: H-1 TAWS II DT 1	1	2024	2	2024
Test and Evaluation: Developmental Testing: H-1 TAWS II DT 2	4	2024	1	2025
Test and Evaluation: Developmental Testing: V-22 TAWS II DT 1	2	2027	4	2027
Test and Evaluation: Developmental Testing: V-22 TAWS II DT 2	4	2028	4	2028
Production Milestones: H-60 Integrated Logistics Assessment	4	2022	1	2023
Production Milestones: H-1 Integrated Logistics Assessment	2	2024	4	2024
Production Milestones: V-22 Integrated Logistics Assessment	4	2027	2	2028
Deliveries: H-60 TAWS II FB4 Delivery	1	2023	1	2023
Deliveries: H-1 TAWS II FB1 Delivery	4	2023	4	2023
Deliveries: H-1 TAWS II FB2 Delivery	4	2024	4	2024
Deliveries: V-22 TAWS II FB 1 Delivery	2	2026	2	2026
Deliveries: V-22 TAWS II FB 2 Delivery	2	2028	2	2028
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation2	1	2025	1	2025
Acquisition Milestones: Funding Allocation: Funding Allocation3	1	2026	1	2026
Acquisition Milestones: Funding Allocation: Funding Allocation4	1	2027	1	2027
Acquisition Milestones: Funding Allocation: Funding Allocation5	1	2028	1	2028
Acquisition Milestones: Funding Allocation: Funding Allocation6	1	2022	1	2022
Acquisition Milestones: Funding Allocation: Funding Allocation7	1	2023	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Funding Allocation: Funding Allocation1	1	2024	1	2024
Acquisition Milestones: Proposal Collection: Proposal Collection1	1	2024	2	2024
Acquisition Milestones: Proposal Collection: Proposal Collection2	1	2025	2	2025
Acquisition Milestones: Proposal Collection: Proposal Collection3	1	2026	2	2026
Acquisition Milestones: Proposal Collection: Proposal Collection4	1	2027	2	2027
Acquisition Milestones: Proposal Collection: Proposal Collection5	1	2028	2	2028
Acquisition Milestones: Proposal Collection: Proposal Collection6	1	2022	2	2022
Acquisition Milestones: Proposal Collection: Proposal Collection7	1	2023	2	2023
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation2	2	2025	2	2025
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation3	2	2026	2	2026
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation4	2	2027	2	2027
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation5	2	2028	2	2028
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation6	2	2022	2	2022
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation7	2	2023	2	2023
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation8	2	2024	2	2024
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection2	3	2025	3	2025
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection3	3	2026	3	2026
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection4	3	2027	3	2027
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection5	3	2028	3	2028
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection6	3	2022	3	2022
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection7	3	2023	3	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection8	3	2024	3	2024
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan2	3	2025	4	2025
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan3	3	2026	4	2026
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan4	3	2027	4	2027
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan5	3	2028	4	2028
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan6	3	2022	4	2022
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan7	3	2023	4	2023
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan8	3	2024	4	2024
DIGITAL INTEROPERABILITY (DI): MANGL				
Acquisition Milestones: Design Review #1	3	2023	3	2023
Acquisition Milestones: Design Review #2	2	2024	2	2024
Acquisition Milestones: CH-53K & KC-130J Rapid Prototype Approval	2	2024	2	2024
Acquisition Milestones: MV-22 Initial Rapid Fielding Approval	2	2025	2	2025
Acquisition Milestones: CH-53K & KC-130J Rapid Fielding Approval	1	2026	1	2026
Systems Development: Integration: MV-22	1	2022	1	2025
Systems Development: Integration: SRP Waveform Updates	1	2026	4	2027
Systems Development: Integration: CH-53K & KC-130J Integration	2	2024	4	2027
Systems Development: Logistics Analysis: MV-22	1	2022	1	2025
Systems Development: Logistics Analysis: CH-53K & KC-130J Logistics Analysis	2	2024	4	2027
Systems Development: Logistics Analysis: Test Articles CA Qty 3	3	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Logistics Analysis: Test Articles CA Qty 7	2	2024	2	2024
Systems Development: Logistics Analysis: Test Articles CA Qty 2	2	2025	2	2025
Test and Evaluation: MANGL Ground Node Prep/Test	1	2022	2	2024
Test and Evaluation: Qualification Testing	2	2024	4	2024
Test and Evaluation: Cyber Security Tabletop	2	2024	2	2024
Test and Evaluation: Flight Demonstration Test/Report	1	2025	2	2025
Test and Evaluation: CH-53K & KC-130J Flight Demo / Report	3	2025	4	2025
Deliveries: Test Articles Qty 4	4	2024	4	2024
Deliveries: Test Articles Qty 3	1	2025	1	2025
Deliveries: Test Articles Qty 7	2	2025	2	2025
Deliveries: Test Articles Qty 2	2	2026	2	2026