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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	1,912.429	250.944	220.404	214.919	-	214.919	217.201	215.574	214.904	216.416	Continuing	Continuing
3278: <i>MQ-25 Air System (AS)</i>	1,701.825	224.396	201.945	200.345	-	200.345	197.883	197.510	197.152	198.300	Continuing	Continuing
3279: <i>Unmanned Carrier Aviation Mission Control System</i>	210.604	26.548	18.459	14.574	-	14.574	19.318	18.064	17.752	18.116	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P462

Note

PE 0605414N Unmanned Carrier Aviation (UCA) is comprised of two separated programs:
 PU 3278 MQ-25 Development is directly related to the MQ-25 Air System (AS) development ACAT I Program.
 PU 3279 UMCS is directly related to the Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) ACAT II program.
 UMCS develops the control station and integrates it with the MQ-25 Air System along with multiple networks and systems both afloat and on shore.

MQ-25 PU 3278 execution is dependent upon the success of UMCS PU 3279 execution. This submission for PU 3278 has been coordinated with UMCS PU 3279.

The prime contractor for MQ-25 development declared a loss on the MQ-25 contract in Oct 2018 and thereby invoked Federal Acquisition Regulation clause 32.503-6(g). Per the loss contract clause, a loss ratio factor must be applied to all progress payments to protect the government by ensuring the amount of unliquidated progress payments does not exceed the fair value of undelivered work. The reduced progress payments will prevent the program from meeting expenditure benchmarks in the near years.

MQ-25 build and delivery of test aircraft are driving critical path to Initial Operational Capability (IOC). Due to aircraft build quality escapes, build schedule margin was significantly reduced and required the program to mitigate the delayed delivery of test aircraft by accepting limitations on the two permanent test assets and one fleet asset.

After thorough analysis of build performance and plan resulted in adopting a new program schedule in March 2023, the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RD&A)) tasked the Program Office with developing Courses of Action (COAs) to better align funding, contracts, and acquisition milestones with the program's current position relative to production readiness. On 26 June 2023, the Secretary of the Navy (SECNAV) approved a program path forward that includes funding restructures between APN and RDTEN that are currently in process for FY23 and FY24. Congressional committees have approved the reprogramming restructure in FY23 to start the critical obsolescence redesign efforts and the procurement of two additional SDTAs to be used in test. The program is waiting for the finalization of the FY24 funding restructures, once this is finalized budgets will be updated.

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A. Mission Description and Budget Item Justification <p>The MQ-25 program, PU 3278, rapidly develops an unmanned capability to embark on Carrier Vessel, Nuclear (CVN) as part of the Carrier Air Wing (CVW) to conduct aerial refueling as a primary mission and provide Intelligence, Surveillance, and Reconnaissance (ISR) capability for a secondary mission. MQ-25 extends Carrier Air Wing mission effectiveness range, partially mitigates the current Carrier Strike Group (CSG) organic ISR shortfall and fills the future Carrier Air Wing-tanker gap, mitigating Strike Fighter shortfall and preserving F/A-18E/F Fatigue Life Expenditure for its primary missions. As the first carrier-based, Group 5 Unmanned Aircraft System (UAS), MQ-25 will pioneer the integration of manned and unmanned operations, utilize mature, complex sea-based Command, Control, Communications, Computers, and Intelligence (C4I) technologies, and pave the way for future multi-faceted, multi-mission Unmanned Aircraft Systems to pace emerging threats.</p> <p>The MQ-25 system will enhance CVN capability and versatility for the Joint Forces Commander through the integration of a persistent, sea-based, multi-mission aerial refueling and ISR Unmanned Aircraft System into the Carrier Air Wing. MQ-25 is comprised of an Air System which will integrate with the UMCS program. These architectural segments will be managed by the PMA-268 Government Lead Systems Integrator (LSI) that provides system-of-systems integration and is also responsible for managing enterprise-level Unmanned Carrier Aviation architecture and associated interfaces. MQ-25 Development includes development and test of the air vehicle to include software, peculiar support equipment, training systems and other logistics elements.</p> <p>In FY 2025, the program will continue GCS integration and begin ground and flight test with the air vehicles. A Static Test Article, all four Engineering Development Models (EDMs), and one of the three System Demonstration Test Articles (SDTAs) will deliver to the test program to support ground and flight testing. The second and third SDTAs and Fatigue Test Article will complete build and be delivered in FY26 for testing. The program will continue to develop and integrate increased software capabilities into the aircraft in support of carrier suitability and mission systems evaluation. The program will begin development and integration efforts to incorporate Stingray to the Fight capabilities necessary to enable and align MQ-25 operations with the Navy's Unmanned Campaign Plan and Air Wing of the Future requirements.</p> <p>The UMCS program, PU 3279, is the system-of-systems required for MQ-25 vehicle and payload control both shipboard and shore based. UMCS consists of all ground and ship-based hardware, software, and networks associated with the planning and execution of flight operations and tactical missions. In addition to the GCS, consisting of Air Vehicle Pilot (AVP) workstations and servers, the UMCS program builds hardware to support line of sight (LOS) communications, beyond line of sight (BLOS) satellite communications (SATCOM), and integration with ship/shore-based systems. There are three GCS variants: MD-5C (CVN-based), MD-5D (Shore-based), and MD-5E (Embarkable system for use on CVNs that do not yet have permanent GCS systems installed). UMCS leverages existing Programs of Record (PoR) for network integration and LOS/BLOS communications and builds MQ-25 unique systems (e.g. an ARC-210 based LOS communication system and a Video Management System (VidMS) for AVP situational awareness). GCS streamlines software development, supports multiple classification levels, and positions MQ-25A interoperability with other DoD systems. Hardware development and fabrication is one facet of the program. UMCS develops and integrates software and modifies several aircraft carrier spaces to install and integrate the GCS and communication systems, in support of MQ-25A test events and operations aboard select NIMITZ Class CVNs. The UMCS program modifies and integrates with existing, external Command, Control, Communication, Computers, and Intelligence systems to provide network paths for air vehicle and mission payload data using a variety of wideband and narrowband communication paths. UMCS accomplishes this by integrating the GCS and the MQ-25A air vehicle with multiple networks and systems both at sea and on shore.</p> <p>In FY 2025, UMCS will complete integration testing of the MD-5E Embarkable system. The Embarkable system consists of a subset of the final GCS configuration hardware and test unique instrumentation installed and integrated with existing ship communication and network systems. UMCS will also complete baseline GCS</p>		

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software development and continue developing Correction of Deficiency (CoD) builds in support of MQ-25 at sea testing events in late FY25 and FY26. UMCS will continue developing Technical Data Packages for system level components and continue providing system engineering, program management, and development support for the program.

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

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	254.446	220.404	158.304	-	158.304
Current President's Budget	250.944	220.404	214.919	-	214.919
Total Adjustments	-3.502	0.000	56.615	-	56.615
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.502	0.000			
• Program Adjustments	0.000	0.000	58.676	-	58.676
• Rate/Misc Adjustments	0.000	0.000	-2.061	-	-2.061

Change Summary Explanation

FY2025 funding was increased by \$56.615:

PU 3278 FY2025 funding request was increased by \$58.385 to fund MQ-25 Test and Evaluation Baseline Capability (\$62.417) and MQ-25 Ground-Based Sense and Avoid (GBSAA) (\$2.000); reduced for Programmatic Adjustment (-4.384), NWCF rate adjustments (-0.048), and additional price rate adjustments (-1.600).

PU 3279 FY2025 funding request was reduced by -\$1.770 for Programmatic Adjustment (-1.765), and NWCF rate adjustments (-.005).

Schedule:

PU 3278: R-4 Schedule Acquisition Milestone Knowledge points, Test Milestones and Air Vehicle (AV) deliveries have shifted due to delays in the build of EDM and SDTAs and the Static Test Article due to supplier related quality escapes and learning associated with full size determinant assembly (FSDA) manufacturing processes. Production path forward determined and implemented for known quality escapes. End result has aircraft deliveries planned for FY23 now occurring in FY25 and FY26.

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<p>PU 3279: R-4 Schedule updated to reflect current CVN install schedule along with latest UCA and CVN Test Windows.</p>		

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Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>				Project (Number/Name) 3278 / MQ-25 Air System (AS)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
3278: MQ-25 Air System (AS)	1,701.825	224.396	201.945	200.345	-	200.345	197.883	197.510	197.152	198.300	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: P462												

A. Mission Description and Budget Item Justification

The scope of the program includes, but is not limited to, system level requirements identification, allocation of requirements to segments and components, design, development, integration, fabrication, test, training, and support activities to provide the MQ-25 capabilities. To provide these capabilities, MQ-25 will transition technologies from other programs and adapt them into the carrier environment. MQ-25 will deliver the necessary air vehicles, command, control, connectivity, shipboard and land-based launch and recovery control systems, associated support systems, interfaces, and upgrades to other Navy systems (as required) to meet the required capabilities.

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

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Air Segment Product Development	114.523	80.868	56.631	0.000	56.631
Articles:	-	-	-	-	-
Description: Air Segment Product Development efforts include, but are not limited to, design, development, integration, fabrication, test and training to deliver a carrier-suitable, semi-autonomous, unmanned vehicle capable of aerial refueling (give) and persistent Intelligence, Surveillance, and Reconnaissance (ISR) operations.					
FY 2024 Plans: Continue Air Vehicle development, design, and integration. Continue development of GCS integration software. Continue development of software and hardware to support IOC and post IOC additive capabilities to account for current threats identified post Engineering and Manufacturing Development ((EMD) contract award. Continue efforts to support IOC and beyond such as advanced training, tactics, and techniques, obsolescence, sustainment, and studies related to operational employment learned since EMD contract award. Continue software integration efforts related to the GCS.					
FY 2025 Base Plans: Complete static testing. Continue Air Vehicle development, design, and integration. All four EDMs and one of the three SDTAs will deliver to the test program to support ground and flight testing. Continue development of logistics products source data. Continue development of GCS integration software. Continue development of software and hardware to support IOC and post IOC additive capabilities to account for current threats identified post EMD contract award. Continue efforts to support IOC and beyond such as advanced training, tactics, and					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
techniques, obsolescence, sustainment, and studies related to operational employment learned since EMD contract award. Continue software integration efforts related to the GCS.					
FY 2025 OCO Plans: N/A					
FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY24 to FY25 is due to the program finalizing the execution of the GCS Primary Hardware Development contracts (C/FPIF and C/CPIF) in FY24.					
Title: Lead Systems Integration (LSI) Product Development					
Articles:					
Description: Lead Systems Integration (LSI) is a Government-led effort including, but not limited to, advanced development, architecture development, interface definition, integration, system level test and evaluation, science and technology investments, roadmap refinement, and coordination of all MQ-25 capabilities across system segments and stakeholders.					
FY 2024 Plans: Continue integration of the GCS and software. Continue Air System and UMCS development, design, and integration with the GCS. Continue government led efforts that support science and technology investments and roadmap refinement. Maintain Cyber Security efforts to achieve Authority to Operate (ATO) certifications for the System Test and Integration Laboratory (STIL), Lab Revitalization Program, and test facilities. Continue operation of the STIL in support of government led hardware and software development and test activities. Continue STIL activities in support of GCS software integration correction of deficiencies.					
FY 2025 Base Plans: Continue integration of the GCS and software. Continue Air System and UMCS development, design, and integration with the GCS. Continue government led efforts that support science and technology investments and roadmap refinement. Maintain Cyber Security efforts to achieve Authority to Operate (ATO) certifications for the System Test and Integration Lab (STIL), Lab Revitalization Program and test facilities. Continue operation of the STIL in support of government led hardware and software development and test activities. Continue STIL activities in support of GCS software integration correction of deficiencies.					
FY 2025 OCO Plans:					
	58.382	60.617	65.778	0.000	65.778
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
N/A					
<p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Increased from FY24 to FY25 due to continued support for the integration efforts for Block 4 and Block 5. A portion of the T&E Capability Baseline is incorporated to support GCS to air vehicle integration efforts and test events.</p>					
<p><i>Title:</i> Management</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Efforts include program, engineering, test, and logistics management to include travel.</p> <p><i>FY 2024 Plans:</i> Continue oversight, coordination, and management of MQ-25 acquisition, system interface and integration activities. Oversee contract activities, to include execution of the EMD contract, travel, and training. Conduct logistics management tasks. Maintain security and program office environments.</p> <p><i>FY 2025 Base Plans:</i> Continue oversight, coordination, and management of MQ-25 acquisition, system interface, and integration activities. Oversee contract activities, to include execution of the EMD contract, travel, and training. Conduct logistics management tasks. Maintain security and program office environments.</p> <p><i>FY 2025 OCO Plans:</i> N/A</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Increase from FY24 to FY25 greater than inflation due to assessment of actuals in FY23, FY24 plan (6.082), and delay in transition of personnel from development to production efforts.</p>	7.805	6.082	7.228	0.000	7.228
	-	-	-	-	-
<p><i>Title:</i> Test and Evaluation</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Description: Provide Government Integrated Test and Evaluation and Performance Based Specifications (PBS) compliance verification; support equipment evaluations and assessments, instrumentation development and support, and Integrated Test support.</p> <p><i>FY 2024 Plans:</i></p>	39.517	50.803	67.054	0.000	67.054
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>Continue to support development, implementation, and sustainment of test facilities, range, and lab test requirements.</p> <p>Support updates to the Test and Evaluation Master Plan, support engineering events, and program management activities. Support activities in Modeling and Simulation development to include validation and verification. Continue support of the Government STIL and continue stand up of the integrated test facilities in support of the EMD contract, to include test facility installation, integration, procurement of support equipment, and accreditation activities.</p> <p>FY 2025 Base Plans: Continue to support development, implementation, and sustainment of test facilities, range, and lab test requirements. Support updates to the Test and Evaluation Master Plan, support engineering events, and program management activities. Support activities in Modeling and Simulation development to include validation and verification. Continue support of the Government STIL and continue stand up of the integrated test facilities in support of the EMD contract, to include test facility installation, integration, procurement of support equipment, and accreditation activities. Provide Government engineering to support Contractor testing and ground/flight testing of EDMs and SDTAs.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY24 to FY25 due to the first 4 EDM and 1 SDTA aircraft beginning ground testing, and addition of MQ-25 T&E Baseline Capability funding.</p>					
<p>Title: Support</p> <p align="right">Articles:</p> <p>Description: Efforts include studies, analyses, and training development support.</p> <p>FY 2024 Plans: Continue to mature the Logistics Elements including the Logistics Product Database (LPD), Aviation Logistics Environment (ALE), Interactive Electronic Technical Manual (IETM), Naval Air Training and Operating Procedures Standardization (NATOPS) publications, Common and Peculiar Support equipment (C/PSE), and continue to build a Product Lifecycle Management (PLM) system to share air system data and resources in an efficient configuration managed environment. Evaluate and track maintainability and obsolescence issues including their</p>	4.169	3.575	3.654	0.000	3.654
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>impact on supportability. Continue to train IOT&E Squadron Fleet operators and maintainers and training Naval Air Technical Data and Engineering Services Command (NATEC) services in support of post IOT&E activities ("train the trainer" events). Continue development of logistics products associated with the GCS.</p> <p>FY 2025 Base Plans: Continue to mature the Logistics Elements including the Logistics Product Database (LPD), Aviation Logistics Environment (ALE), Interactive Electronic Technical Manual (IETM), Naval Air Training and Operating Procedures Standardization (NATOPS) publications, Common and Peculiar Support equipment (C/PSE), and continue to build a Product Lifecycle Management (PLM) system to share air system data and resources in an efficient configuration managed environment. Evaluate and track maintainability and obsolescence issues including their impact on supportability. Continue to train IOT&E Squadron Fleet operators and maintainers and training Naval Air Technical Data and Engineering Services Command (NATEC) services in support of post IOT&E activities ("train the trainer" events). Continue development of logistics products associated with the GCS.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY24 to FY25 due to inflation.</p>					
Accomplishments/Planned Programs Subtotals	224.396	201.945	200.345	0.000	200.345

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• APN/0449C: MQ-25 <i>Unmanned Carrier Aviation, AP</i>	51.463	50.576	51.344	-	51.344	52.551	83.681	87.728	89.569	581.437	1,095.817
• APN/0605 J0449: <i>MQ-25 APN SPARES</i>	121.233	42.500	0.000	-	0.000	115.349	116.093	118.773	123.073	Continuing	Continuing
• APN/0449: MQ-25 <i>Unmanned Carrier Aviation, APN-4</i>	744.181	597.160	552.259	-	552.259	567.301	582.448	759.572	1,063.696	8,442.743	13,309.360
• APN/0599: MQ-25 <i>APN Series</i>	0.000	0.000	0.000	-	0.000	33.889	19.036	24.754	4.184	0.000	81.863

Remarks
The Program has an issue with the Other Appropriation section for MQ-25 APN, the program is working to get that fixed. APN 0449C is advanced procurement for the MQ-25A Air System to procure production long-lead items.

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
APN 0605 spares supports the APN-4 efforts for sparing.											
APN 0449 is APN-4 regular supporting the manufacturing and production of MQ-25 Air System production aircraft.											
APN 0599 is APN-5 supporting modifications to the MQ-25 Air System aircraft.											

D. Acquisition Strategy

Based on the Government's acquisition strategy approved in April 2017, the MQ-25 program is an evolution from the previous Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) program and is an Acquisition Category (ACAT) IB program managed by Program Executive Office, Unmanned Aviation & Strike Weapons (PEO(U&W)), PMA-268 Unmanned Carrier Aviation (UCA) Program Office. Pursuant to 10 U.S.C. 2430(d)(1), the Milestone Decision Authority (MDA) is ASN(RDA).

MQ-25 requirements are aligned with the UCLASS Initial Capabilities Document (ICD) and the Next Generation Air Dominance (NGAD) Family of Systems (FoS) Initial Capabilities Document, which highlight the need for carrier-based refueling and persistent ISR capabilities. The Joint Requirements Oversight Council (JROC) endorsed the UCLASS ICD in April 2011 and formally approved it on 9 June 2011 via JROC Memorandum (JROCM) 087-11. The NGAD Family of Systems ICD was validated by the JROC on 18 August 2015 and formally approved by JROCM 087-15. The JROC's guidance delineated in the validated ICD and subsequent JROCMs were to establish a requirement for a versatile platform that supports a myriad of organic Naval missions such as aerial refueling and ISR for the CVW. The JROC validated the Capability Development Document (CDD) for MQ-25 Carrier Based Unmanned Air System (CBAUS) on 21 July 2017. Through a highly competitive source selection, the EMD contract was awarded in August 2018, and moved the IOC objective four years earlier to 2024. The Navy recognized investments were required to support the shorter schedule and received support to increase the number of test CVN installs from two to four and exercised an option for SDTA production to start in FY20. Due to the UMCS FY20 budget reduction (PU 3279) in PB20, modifications ceased on two of the four test CVNs which made it highly likely IOC would be delayed by at least 10 months. The shift to a mature, industry developed GCS mitigated some of this risk, by providing an Embarkable GCS that can be used for testing on any Joint Precision Approach and Landing System (JPALS)-equipped CVN. The latest projection for MQ-25A IOC is July 2026 and the program continues to look for opportunities to mitigate additional schedule risk. A stable funding base for both MQ-25 (PU 3278) and UMCS (PU 3279) remains critical to successfully delivering MQ-25A on an aggressive timeline as the two programs are tightly linked.

MQ-25 is implementing an evolutionary acquisition strategy to develop, fly, deploy, and evolve the MQ-25 Air Vehicle for IOC and fleet integration. This MQ-25 acquisition strategy continues with entry into flight test, correction of deficiencies work, and stand up of logistics and training efforts in conjunction with continued CVN modifications required for a decision to proceed to IOT&E and IOC in FY2026.

MQ-25 awarded a fixed price incentive, firm target (FPIF) contract for the AS EMD contract to Boeing in August 2018. As a result of ASN(RDA) and OPNAV N9 directing new requirements for the MQ-25 GCS, a contract was awarded to Boeing in December 2020 to fund integration of a new, more capable GCS provided as government furnished equipment (GFE) and government furnished information (GFI) by PMA-268.

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MQ-25, as part of the evolutionary acquisition strategy, will begin to utilize a Corporate Basic Ordering Agreement (BOA) for engineering studies, nonrecurring engineering to pace emerging threats and capabilities needed for operational environment, sustainment, and training efforts.

MQ-25 is dependent upon the UMCS program to provide CVN-based GCS systems that are integrated into CVN networks.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy												Date: March 2024			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0605414N / Unmanned Carrier Aviation (UCA)				Project (Number/Name) 3278 / MQ-25 Air System (AS)							
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Segment - Primary Hardware Development	C/FPIF	Boeing : St. Louis, MO	854.165	38.942	Dec 2022	20.601	Dec 2023	0.000		-		0.000	0.000	913.708	913.708
Air Segment - Primary Hardware SDTA	C/FPIF	Boeing : St. Louis, MO	84.700	0.000		0.000		0.000		-		0.000	0.000	84.700	84.700
Air Segment - Primary Hardware ESA	C/CPIF	Boeing : St. Louis, MO	17.572	1.000	Apr 2023	24.289	Mar 2024	0.000		-		0.000	0.000	42.861	42.861
Air Segment - Primary Hardware BOA	C/BOA	Boeing : St. Louis, MO	32.536	0.000		0.000		0.000		-		0.000	0.000	32.536	56.825
Air Segment- Primary Hardware Development	C/CPIF	Boeing : St. Louis, MO	47.453	42.238	Dec 2022	3.000	May 2024	6.280	Dec 2024	-		6.280	0.000	98.971	98.971
Air Segment - Primary Hardware Development	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	84.025	84.025	131.555
Air Segment - Systems Engineering	WR	NAWCAD : Patuxent River, MD	87.952	27.062	Nov 2022	30.325	Nov 2023	43.232	Nov 2024	-		43.232	Continuing	Continuing	Continuing
Air Segment - Systems Engineering	WR	NAWCWD : China Lake, CA	5.711	4.000	Nov 2022	1.374	Nov 2023	3.260	Nov 2024	-		3.260	Continuing	Continuing	Continuing
Air Segment - Systems Engineering	Various	Various : Various	5.304	1.281	Nov 2022	1.279	Nov 2023	3.859	Nov 2024	-		3.859	Continuing	Continuing	Continuing
CS&C Segment	Various	Various : Various	58.911	0.000		0.000		0.000		-		0.000	0.000	58.911	58.911
Carrier Segment (Ship Integration)	Various	Various : Various	42.882	0.000		0.000		0.000		-		0.000	0.000	42.882	42.882
LSI - Advanced Development (Primary Hardware Development)	Various	Various : Various	1.272	0.000		0.000		0.000		-		0.000	0.000	1.272	17.272
LSI - Systems Engineering	Various	Various : Various	26.929	5.636	Nov 2022	4.948	Nov 2023	5.057	Nov 2024	-		5.057	Continuing	Continuing	Continuing
LSI - Systems Engineering	WR	NAWCAD : Patuxent River, MD	180.205	48.892	Nov 2022	52.249	Nov 2023	53.986	Nov 2024	-		53.986	Continuing	Continuing	Continuing
LSI - Systems Engineering	Various	NAVWAR : San Diego, CA	16.899	2.202	Nov 2022	1.954	Nov 2023	3.414	Nov 2024	-		3.414	Continuing	Continuing	Continuing
LSI - Integrated Digital Environment	SS/FFP	NAWCAD : Lakehurst, NJ	16.330	1.652	Mar 2023	1.466	Mar 2024	3.321	Mar 2025	-		3.321	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3278 / <i>MQ-25 Air System (AS)</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Segment -Primary Hardware Development	WR	NSMA : Washington, DC	7.800	0.000		0.000		0.000		-		0.000	0.000	7.800	7.800
Subtotal			1,486.621	172.905		141.485		122.409		-		122.409	Continuing	Continuing	N/A

Remarks
Decrease from FY24 to FY25 is due to the program finalizing the execution of the GCS Primary Hardware Development contracts (C/FPIF and C/CPIF) in FY24.

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Manpower Studies & Analyses	Various	Various : Various	0.890	0.214	Nov 2022	0.124	Nov 2023	0.127	Nov 2024	-		0.127	Continuing	Continuing	Continuing
Training Development	Various	Various : Various	16.328	3.955	Nov 2022	3.451	Nov 2023	3.527	Nov 2024	-		3.527	Continuing	Continuing	Continuing
Subtotal			17.218	4.169		3.575		3.654		-		3.654	Continuing	Continuing	N/A

Remarks
Increase from FY24 to FY25 due to inflation.

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	149.989	37.762	Nov 2022	49.037	Nov 2023	65.249	Nov 2024	-		65.249	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/BA	Various : Various	8.842	1.327	Nov 2022	1.296	Nov 2023	1.325	Nov 2024	-		1.325	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	C/BA	Various : Various	0.000	0.428	Nov 2022	0.470	Nov 2023	0.480	Nov 2024	-		0.480	Continuing	Continuing	Continuing
Subtotal			158.831	39.517		50.803		67.054		-		67.054	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3278 / <i>MQ-25 Air System (AS)</i>
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Increase from FY24 to FY25 due to the first 4 EDM and 1 SDTA aircraft beginning ground testing and addition of MQ-25 T&E Baseline Capability funding.

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management	Various	Various : Various	10.157	1.921	Nov 2022	1.530	Nov 2023	1.564	Nov 2024	-		1.564	Continuing	Continuing	Continuing
Management	WR	NAWCAD : Patuxent River, MD	28.278	5.744	Nov 2022	4.441	Nov 2023	5.551	Nov 2024	-		5.551	Continuing	Continuing	Continuing
Management	Various	NAVAIR : Patuxent River, MD	0.720	0.140	Oct 2022	0.111	Oct 2023	0.113	Oct 2024	-		0.113	Continuing	Continuing	Continuing
Subtotal			39.155	7.805		6.082		7.228		-		7.228	Continuing	Continuing	N/A

Remarks
Increase from FY24 to FY25 greater than inflation due to assessment of actuals in FY23, FY24 plan (7.082), and delay in transition of personnel from development to production efforts.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,701.825	224.396	201.945	200.345	-	200.345	Continuing	Continuing	N/A

Remarks

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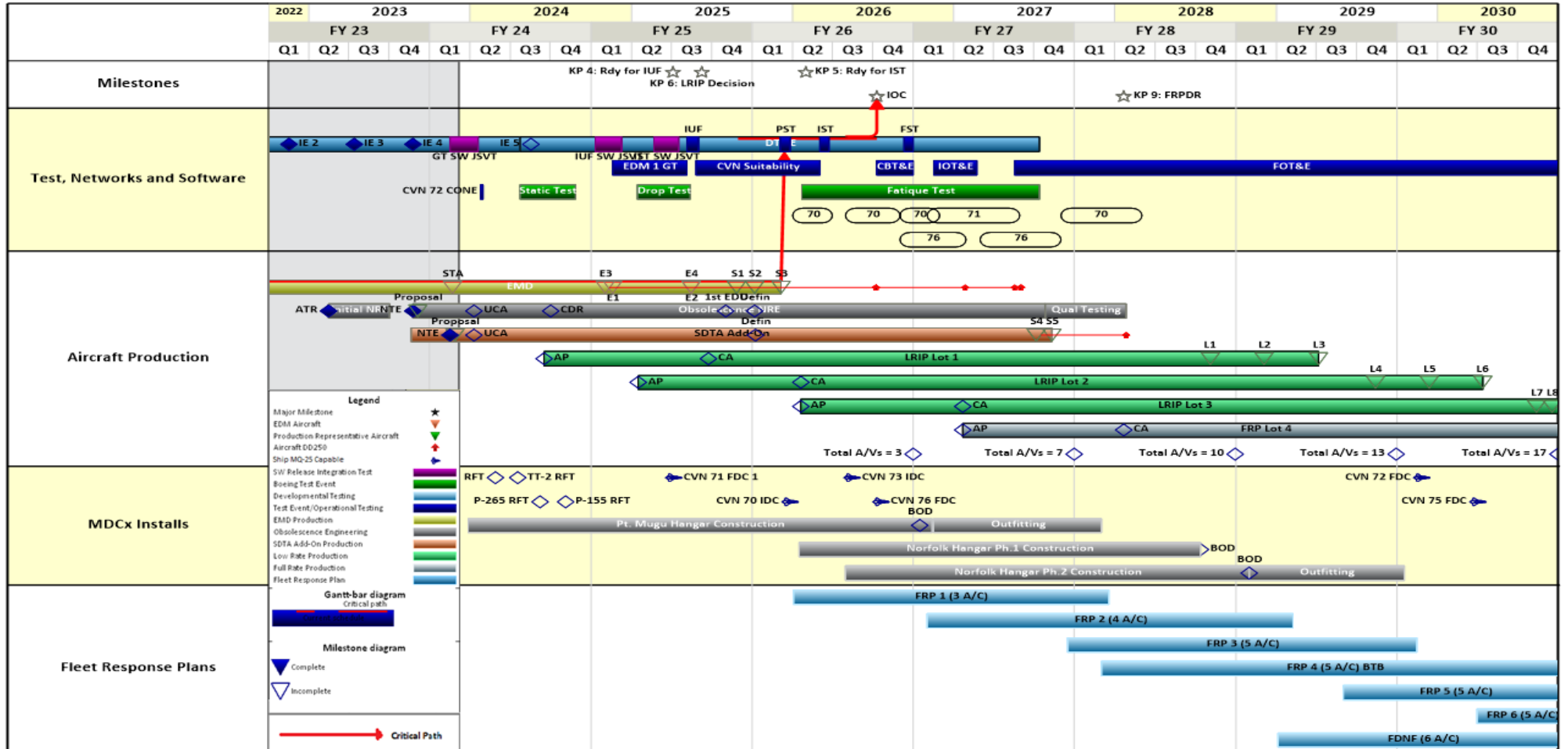
Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy

Date: March 2024

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0605414N / Unmanned Carrier Aviation
(UCA)

Project (Number/Name)
3278 / MQ-25 Air System (AS)



Note: This depiction of the program Integrated Government Schedule is a resource for government planning purposes only and shall not be construed as a modification to delivery or performance requirements set forth in the contract.

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3278 / <i>MQ-25 Air System (AS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MQ-25				
Acquisition Milestones: Milestones & Reviews: EDM Delivery 1	1	2025	1	2025
Acquisition Milestones: Milestones & Reviews: EDM Delivery 2	3	2025	3	2025
Acquisition Milestones: Milestones & Reviews: EDM Delivery 3	1	2025	1	2025
Acquisition Milestones: Milestones & Reviews: EDM Delivery 4	3	2025	3	2025
Acquisition Milestones: Milestones & Reviews: KP4 First Ready for IUF	3	2025	3	2025
Acquisition Milestones: Milestones & Reviews: KP5 Ready for IST	2	2026	2	2026
Acquisition Milestones: Milestones & Reviews: Initial Sea Trials	2	2026	2	2026
Acquisition Milestones: Milestones & Reviews: KP6 AV MS C	3	2025	3	2025
Acquisition Milestones: Milestones & Reviews: KP7 Ready for IOC	3	2026	3	2026
Acquisition Milestones: Milestones & Reviews: T-1 Hoist Aboard	3	2023	3	2023
Acquisition Milestones: Milestones & Reviews: Initial Operational Test and Evaluation	1	2027	2	2027
Acquisition Milestones: Milestones & Reviews: IOC	4	2026	4	2026
Acquisition Milestones: Milestones & Reviews: SDTA 1 Delivery	4	2025	4	2025
Acquisition Milestones: Milestones & Reviews: SDTA 2 Delivery	1	2026	1	2026
Acquisition Milestones: Milestones & Reviews: SDTA 3 Delivery	1	2026	1	2026
Acquisition Milestones: Milestones & Reviews: Follow on Test and Evaluation	3	2027	4	2029
Acquisition Milestones: Milestones & Reviews: FRP Decision	2	2028	2	2028
Systems Development: MQ-25 System Design & Integration: Software Integration	3	2023	1	2025
Systems Development: Air Segment: ITT and Integration Support	3	2023	2	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>				Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
3279: <i>Unmanned Carrier Aviation Mission Control System</i>	210.604	26.548	18.459	14.574	-	14.574	19.318	18.064	17.752	18.116	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) program develops, modifies, builds, integrates, and installs control systems, afloat and ashore, required to operate not only the MQ-25A but also Collaborative Combat Aircraft (CCA) and future unmanned systems. UMCS will have to modify existing systems or develop new capabilities to support the control of different unmanned systems. With limited space on the aircraft carriers, the control station software will be modified to enable control of multiple aircraft from a single cockpit. The Unmanned Carrier Aviation Mission Control System program includes what was previously identified as the Control System & Connectivity (CS&C) and Carrier Vessel, Nuclear (CVN) Integration (CVNI) Segments previously captured under the MQ-25 Development PU 3278.

The Unmanned Carrier Aviation Mission Control System program, PU 3279, is the system-of-systems required for MQ-25 vehicle and payload control both shipboard and shore based. Unmanned Carrier Aviation Mission Control System consists of all ground and ship based hardware, software, and networks associated with the planning and execution of flight operations and tactical missions. In addition to Ground Control Station (GCS), consisting of Air Vehicle Operator (AVO) workstations and servers, the Unmanned Carrier Aviation Mission Control System program builds hardware to support line of sight (LOS) communications, beyond line of sight (BLOS) satellite communications (SATCOM), and integration with ship/shore-based systems. There are three variants of the GCS: MD-5C (CVN-based), MD-5D (Shore-based) and MD-5E (Embarkable system) for use on CVNs that do not yet have permanent GCS systems installed. Unmanned Carrier Aviation Mission Control System leverages existing Programs of Record for network integration and LOS/BLOS communications and builds MQ-25 unique systems (e.g. an ARC-210 based LOS communication system and a Video Management System (VidMS) for AVO situational awareness). The GCS, with a dedicated manufacturer, allows for streamlined software development, supports multiple classification levels, and positions MQ-25A interoperability with other DoD systems. Hardware development and fabrication is one facet of the program. Unmanned Carrier Aviation Mission Control System develops and integrates software and modifies several aircraft carrier spaces to install and integrate the GCS and communication systems, in support of MQ-25A test events and operations aboard select NIMITZ Class CVNs. The Unmanned Carrier Aviation Mission Control System program modifies and integrates with existing, external Command, Control, Communication, Computers, and Intelligence (C4I) systems to provide network paths for air vehicle and mission payload data using a variety of wideband and narrowband communication paths. Unmanned Carrier Aviation Mission Control System accomplishes this by integrating the GCS and the MQ-25A Air Vehicle with multiple networks and systems both at sea and on shore.

Unmanned Carrier Aviation Mission Control System builds the following hardware: MQ-25A GCS, Video Management System (VidMS), ARC-210 Radio Communication System (RCS), and Ashore Routing Communication System (ARCS). The GCS consists of the following components: air vehicle operator (AVO) workstations, server racks, network interface racks, integrated communication system (ICS), Data Transfer System (DTS), and software. The ship variant (MD-5C) will leverage the shore-based system components but will have manufacturing differences to account for the harsher CVN environment. The VidMS provides situational awareness displays of the CVN environment. The ARC-210 and Digital Modular Radio (DMR) systems provide narrowband command and control (C2) communications between the GCS and the MQ-25A. An ICS 1/2 rack integrates the GCS with existing carrier communication systems. The ARCS provides an interface between the shore GCS sites and

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>
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the Command, Control, Communication, Computers, and Intelligence (C4I) networks enabling wide-band LOS and BLOS communications with the MQ-25A. Unmanned Carrier Aviation Mission Control System also leverages NAVWAR baseline systems on board the CVNs and at the MQ-25A shore sites.

Unmanned Carrier Aviation Mission Control System leads development, modification, engineering, and integration activities, to facilitate seamless voice, data, and C2 exchanges with the MQ-25A AV, local networks, voice networks, C2 networks, tactical networks, intelligence systems, and launch and recovery systems by collaborating with existing NAVWAR, NAVAIR and NAVSEA Programs of Record (PoRs).

CVN modification and installation is governed by the Naval Sea Systems Command (NAVSEA) Navy Modernization Process (NMP). This process defines the schedule for submitting documentation, drawings, and hardware to support CVN modifications. Unmanned Carrier Aviation Mission Control System modifications must occur during pre-planned maintenance periods that are updated at least twice per year. Changes to these maintenance periods drive changes to the Unmanned Carrier Aviation Mission Control System installation schedule. The NMP consists of multiple phases. Phase 1, approximately three years before the availability period, consists of developing the system design, technical data, installation guidance, and Ship Change Documents (SCDs). Phase 2, approximately two years before the maintenance period, consists of hull specific ship checks, drawing development and hardware procurement. Phase 3, one year before the maintenance period, consists of drawing approval, install schedule development, completion of cybersecurity and logistics documentation, and GCS integration testing. Phase 4 occurs during the maintenance period and consists of CVN infrastructure modification, hardware installation, and completion of ship-board integrated verification testing. CVN modifications and installations are based on the number of SCDs and the length of the planned maintenance period. Due to the size and complexity of the Unmanned Carrier Aviation Mission Control System modifications, a minimum of two 6-month maintenance periods is required for a full installation.

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

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Unmanned Carrier Aviation (UCA) Mission Control System	26.548	18.459	14.574	0.000	14.574
Articles:	-	-	-	-	-
Description: Description: The Unmanned Carrier Aviation Mission Control System program is a Government-led effort which includes, but is not limited to, development, integration, installation, and testing of the Unmanned Carrier Aviation Mission hardware and software, upgrades to existing CVN infrastructure to support accelerated delivery of MQ-25 capabilities, unique modifications to the Joint Precision Approach Landing System (JPALS) and the Aircraft Launch and Recovery Equipment (ALRE) to support specific MQ-25A capabilities, and integration with C4I systems.					
FY 2024 Plans:					
- Install Embarkable, Test Trailer and Test unique equipment on CVN B to support at sea testing of MQ-25 in FY25					
- Install MD-5E hardware in the Unmanned Air Warfare Center (UAWC), Test Trailer and Test unique equipment on CVN A to support at sea testing of MQ-25 in FY25					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
- Tasking for SIDs development on CVN C and CVN B to support installation of Test Trailer and Test unique equipment to support at sea testing of MQ-25 in the late FY25 and early FY26 timeframe - Continue development of Technical Data Packages for system level components - Finalize interface design between the MD-5E and ancillary/communication/network systems - Complete assembly, integration and test of the MD-5E CVN Emabarkable system - Finalize guidance packages and interface control documentation for the MD-5E CVN Embarkable system FY 2025 Base Plans: -Complete at sea testing of UMCS, to include the new control station, in the carrier environment on CVN A in FY25 (equipped during FY24) -Continue development of Technical Data Packages for system level components -Support the integration of JPALS with the MQ-25A aircraft -Continue GCS software development and begin at sea testing with MQ-25 in 4QFY25 -Perform MD-5E Embarkable integration testing with communication systems at the UCA System Test and Integration Laboratory (STIL) FY 2025 OCO Plans: N/A FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY24 to FY25 is due to the completion MD-5E Embarkable development and testing and continued transition of UMCS work to OPN.					
Accomplishments/Planned Programs Subtotals	26.548	18.459	14.574	0.000	14.574

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• OPN/4269: <i>UMCS- Unman Carrier Aviation (UCA) Mission Cntrl Stn</i>	134.726	152.687	130.050	-	130.050	200.423	192.774	216.239	201.187	Continuing	Continuing
• OPN/9020/J4269: <i>Spares for Unmanned Carrier Aviation (UCA)</i>	3.246	8.150	4.277	-	4.277	5.094	8.148	5.477	0.438	Continuing	Continuing
Remarks											
The Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) program builds, integrates, installs, and sustains GCSs required to operate the MQ-25A AV via CVNs or shore sites.											

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<p>- RDTE will fund the redesign of the CVN infrastructure; design, assembly, and installation of an Embarkable GCS to support testing; software development to support MQ-25A AV development and certification of new software for UMCS on Navy IT systems/platforms; product development modifying existing systems with new capabilities for integration with or utilization by UMCS.</p> <p>- OPN will fund the modification of CVN infrastructure and installation of hardware on CVNs and operational shore sites; incorporation of UMCS into existing Post MS-C PoRs (i.e. NAVWAR - C4I, ADNS, SATCOM, Secure Shore Integration; NAVAIR - ALRE, JPALS); Tech Refresh which includes replacement of a portion of selected hardware components on a three-year recurring schedule.</p>											

D. Acquisition Strategy

In February 2019, the Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) program was designated an ACAT II program, a separate PoR from the MQ-25 Air System (AS) ACAT IB. However, both PoRs, Unmanned Carrier Aviation Mission Control System and MQ-25, are required to field an Unmanned Carrier Aviation Mission Control System. MQ-25 Air System is dependent on Unmanned Carrier Aviation Mission Control System to meet the program's 2026 IOC.

- Due to the close alignment of requirements with MQ-25 Air System, interoperability, and parent documentation, the Unmanned Carrier Aviation Mission Control System PoR will leverage MQ-25 PoR acquisition events and milestones as part of the acquisition strategy for oversight and approvals.

- The Unmanned Carrier Aviation Mission Control System government team is performing the role of the Lead Systems Integrator (LSI) for the Ground Control System (GCS).

- In order to expedite fielding of Unmanned Carrier Aviation Mission Control System and to align with the IOC requirements for the MQ-25 SoS, the program team has and will continue to leverage systems with high Technology Readiness Levels, largely consisting of Commercial and Government Off the Shelf systems (i.e. COTS and GOTS) to the greatest extent possible.

The latest Unmanned Carrier Aviation Mission Control System acquisition strategy was approved on 25 July 2019. The Unmanned Carrier Aviation Mission Control System PoR will use an evolutionary acquisition approach to develop, integrate, test, deploy, and evolve the capabilities throughout the life of the system. The Unmanned Carrier Aviation Mission Control System requires integration of multiple products with the primary developmental system being the software dominant GCS.

Prior to FY21, PMA-268 had been developing a government-furnished Ground Control Station (GCS) known as MD-5A and MD-5B as part of its Unmanned Carrier Aviation Mission Control System program, the system-of systems required for command and control of the MQ-25A Air Vehicle (AV) and payload. In September 2020, Navy leadership directed the MQ-25 program to transition to a mature, industry-developed GCS capable of Joint All Domain Command and Control (JADC2) interoperability and meeting multi-level security requirements. The new Lockheed Martin designed and built GCS will streamline software development, readily support multiple classification levels, and position the MQ-25 for interoperability with other DoD systems. With the decision to switch to an industry developed GCS, work

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>
<p>associated with integrating the new GCS into the MQ-25A Air Vehicle and payload was put on contract with Boeing (for integration) in December 2020 and Lockheed Martin (via NSMA) in April 2021.</p> <p>Unmanned Carrier Aviation Mission Control System hardware procurements will accommodate CVN installation, testing, and deployment constraints as well as ship modification schedule constraints.</p> <p>- Because the Unmanned Carrier Aviation Mission Control System is integrated and installed aboard CVNs, PMA-268 must follow the ship modernization process, which directs delivery dates for deliverables and installation milestones associated with a CVN maintenance availability period. The lead-time associated with this process drives the timeline to design, develop, and procure equipment ahead of the planned installation date.</p> <p>Unmanned Carrier Aviation Mission testing will occur in multiple stages, progressing from standalone testing with an air vehicle simulator, to operating in conjunction with a hardware-in-the-loop air vehicle (hot bench), to shipboard evaluation of Unmanned Air Warfare Center (UAWC) installations. Each version of Unmanned Carrier Aviation Mission Control System will be evaluated for system functionality and usability through a series of capabilities-based test events focused on the execution of mission tanking, recovery tanking, and Intelligence, Surveillance, and Reconnaissance missions. Additional testing to include mission planning, supportability, and reliability will be conducted during dedicated events when not captured concurrently with other tests.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
UMCS (Ship Integration)	Various	Various : Various	40.993	5.107	Nov 2022	6.398	Nov 2023	3.725	Nov 2024	-		3.725	Continuing	Continuing	Continuing
UMCS (Ship Integration)	WR	NAWCAD : Patuxent River, MD	127.561	19.391	Nov 2022	12.061	Nov 2023	10.849	Nov 2024	-		10.849	Continuing	Continuing	Continuing
UMCS (Ship Integration)	WR	NAWCAD : Lakehurst, NJ	11.357	0.000		0.000		0.000		-		0.000	4.031	15.388	-
UMCS - Primary Hardware/Software Development CS	WR	NSMA : Washington, DC	15.221	0.000		0.000		0.000		-		0.000	0.000	15.221	-
UMCS	SS/FFP	Rockwell Collins : Cedar Rapids, IA	2.856	0.000		0.000		0.000		-		0.000	0.000	2.856	2.242
UMCS	Various	NAVWAR : San Diego, CA	12.616	2.050	Nov 2022	0.000		0.000		-		0.000	6.589	21.255	-
Subtotal			210.604	26.548		18.459		14.574		-		14.574	Continuing	Continuing	N/A

Remarks
The decrease from FY24 to FY25 is due to completion of MD-5E Embarkable development and testing and continued transition of UMCS work to OPN.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	210.604	26.548	18.459	14.574	-	14.574	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy

Date: March 2024

Appropriation/Budget Activity
1319 / 5

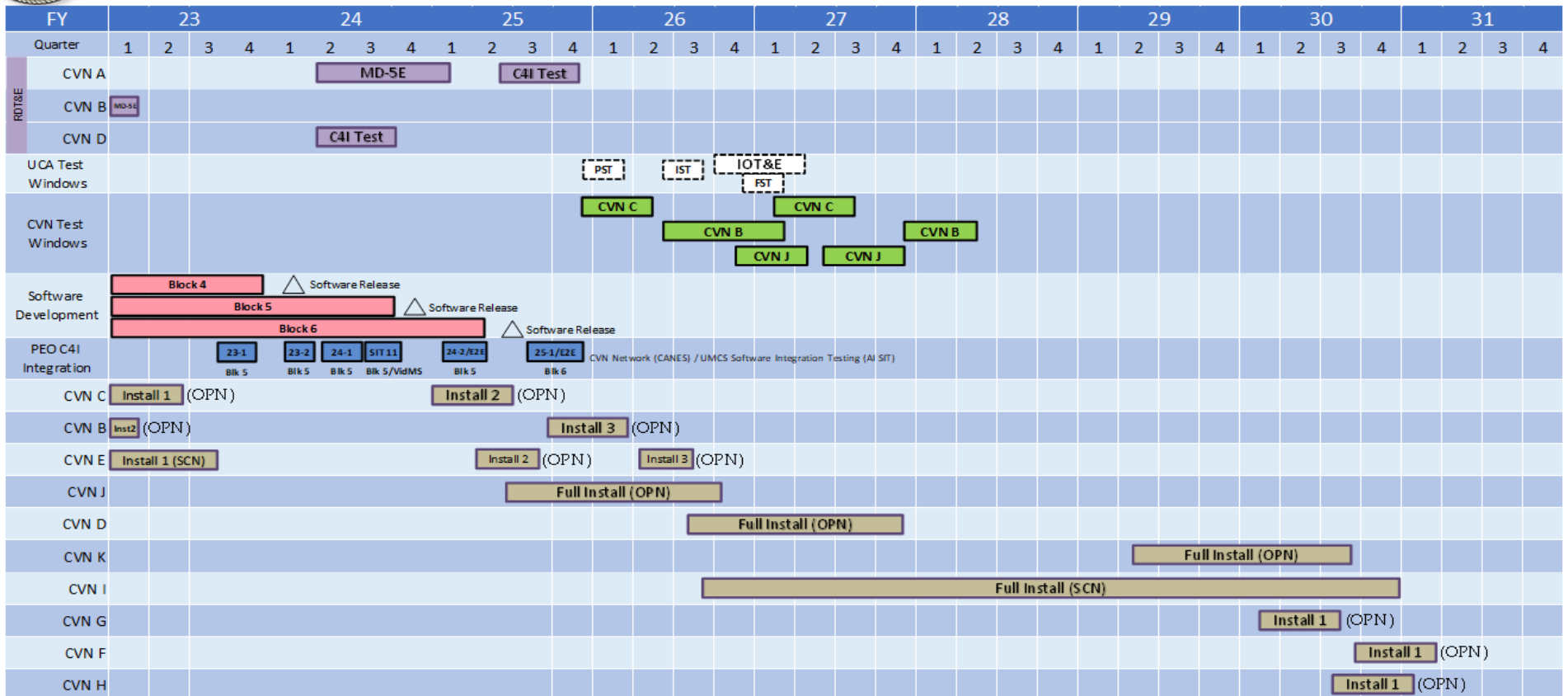
R-1 Program Element (Number/Name)
PE 0605414N / Unmanned Carrier Aviation
(UCA)

Project (Number/Name)
3279 / Unmanned Carrier Aviation Mission
Control System



PMA 268 CVN AVAILABILITY TARGETS

AS OF 15 DECEMBER 2023 (PMS 312 CVN AVAILABILITY SCHEDULE DATED 28 NOVEMBER 2023)



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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / <i>Unmanned Carrier Aviation (UCA)</i>	Project (Number/Name) 3279 / <i>Unmanned Carrier Aviation Mission Control System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
UMCS				
System Development (RDTE Carriers): UMCS Program (MD-5): CVN B MD-5E Temporary Installation	1	2023	1	2023
System Development (RDTE Carriers): UMCS Program (MD-5): CVN A MD-5E Temporary Installation	2	2024	4	2024
System Development (RDTE Carriers): UMCS Program (MD-5): UMCS Program: Software (SW) Development/SW Testing/Technology Refresh/SW Integration	1	2023	3	2025
System Development (RDTE Carriers): NAVWAR C4I Integration: AI SIT, ADNS	1	2023	4	2025
Carrier Modifications (OPN Carriers): CVN C Installation 1	1	2023	2	2023
Carrier Modifications (OPN Carriers): CVN C Installation 2	1	2025	3	2025
Carrier Modifications (OPN Carriers): CVN C Installation 3	4	2027	1	2028
Carrier Modifications (OPN Carriers): CVN B Installation 2	1	2023	1	2023
Carrier Modifications (OPN Carriers): CVN B Installation 3	3	2025	1	2026
Carrier Modifications (OPN Carriers): CVN B Installation 4	3	2028	4	2029
Carrier Modifications (OPN Carriers): CVN D Installation 1	3	2026	4	2027
Carrier Modifications (OPN Carriers): CVN E Installation 2	2	2025	3	2025
Carrier Modifications (OPN Carriers): CVN E Installation 3	2	2026	3	2026
Carrier Modifications (OPN Carriers): CVN F Installation 1	2	2028	4	2028
Carrier Modifications (OPN Carriers): CVN G Installation 1	2	2025	4	2025
Carrier Modifications (OPN Carriers): CVN G Installation 2	4	2028	4	2028
Carrier Modifications (OPN Carriers): CVN K Installation 2	3	2028	4	2029
Carrier Modifications (OPN Carriers): CVN J Installation	2	2025	4	2026