

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A
--	---

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	10,001.440	106.483	137.597	109.431	-	109.431	136.959	108.653	112.312	114.666	Continuing	Continuing
1425: V-22	9,975.541	79.258	95.569	32.481	-	32.481	40.463	15.523	0.000	0.000	0.000	10,238.835
3090: <i>V-22 Improvement Program</i>	25.899	27.225	42.028	76.950	-	76.950	96.496	93.130	112.312	114.666	Continuing	Continuing

**Program MDAP/MAIS Code:**  
**Project MDAP/MAIS Code(s):** 212

**A. Mission Description and Budget Item Justification**

The V-22 Osprey is an Acquisition Category IC Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the Carrier Onboard Delivery needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command (USSOCOM). The MV-22 variant replaced the CH-46E in the Marine Corps and the CMV-22 variant will replace the C-2A in the Navy. The CV-22 variant replaced the MH-53J and MH-53M and augments the C-130 in the Air Force and USSOCOM. The V-22 is capable of flying over 2,100 nautical miles, with a single refueling, giving the services the advantage of a vertical/short take-off and landing aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development for correction of deficiencies and includes Block B upgrades which encompassed engineering and manufacturing development of new end-items prior to the production incorporation decision as well as Block C suitability and effectiveness development upgrades. Currently converting all Block B to Block C configuration. Capability Development Document interoperability requirements were addressed through a spiral upgrade acquisition strategy. It was the first spiral upgrade providing Key Enabling Department of Defense mandated open systems architecture upgrades for the mission computer hardware and software while simultaneously addressing required interoperability common avionics upgrades and current avionics obsolescence issues. Future development efforts will include pre-planned-product-improvements in the capability development document and re-design efforts to correct critical Reliability, Maintainability and Availability issues in support of readiness Operational Safety Improvement Program as prioritized by the United States Marine Corps (USMC) or an Urgent Universal Needs Statement.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2025 Navy	<b>Date:</b> March 2024
---	-------------------------

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A
--	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
Previous President's Budget	125.233	137.597	117.745	-	117.745
Current President's Budget	106.483	137.597	109.431	-	109.431
Total Adjustments	-18.750	0.000	-8.314	-	-8.314
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-15.697	0.000			
• SBIR/STTR Transfer	-3.053	0.000			
• Program Adjustments	0.000	0.000	-8.175	-	-8.175
• Rate/Misc Adjustments	0.000	0.000	-0.139	-	-0.139

**Change Summary Explanation**

- FY 2025 decreased by a total of \$8.314 million since the previous President's Budget submission due to the following adjustments:
1. Increased by \$1.383 million to support CMV-22's Joint Avionics Reconfigurable Virtual Information System (JARVIS) mission computer.
  2. Decreased by \$8.500 million in PU 1425 for Flight Test and Joint Precision Approach and Landing System (JPALS) to account for programmatic adjustments.
  3. Decreased by \$1.058 million in PU 3090 for Flight Test to account for programmatic adjustments.
  4. Decreased by \$0.139 million for miscellaneous rate adjustments.

V-22 is entering into the sustainment phase with the remaining Program of Record aircraft delivering in FY 2025 timeframe. Along with the transition to sustainment, RDT&E efforts funded in Project Unit (PU) 1425 associated with sustainment, will be transitioned to PU 3090 (V-22 Improvement Program). FY 2027 will be the last year of funding in PU 1425.

Schedule:

Project Unit 1425:

1. Hardware Development - Planetary Pinion NRE and Implementation updated to reflect delays in contract award. System Verification Review and Program Requirements Review have been added. Preliminary Design Review/Critical Design Review and System Verification Review/Program Requirements Review have been removed from the Zinc Nickel schedule as technical risk reduction is no longer requiring qualification.
2. CMV Development - Full Operational Capability has been added to the schedule.
3. Infrared Suppressor re-design - Schedule updated to reflect the delay in flight testing.
4. Open Systems Architecture/Cyber Security - Schedule updated to reflect the rephasing of the JARVIS program. Hardware Qualification Test and Integrated Baseline Review were added to the schedule. Schedule for FY 2025 and out was moved to PU 3090.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	
<p>5. Degraded Visual Environment / Helmet Mounted Display (DVE/HMD) - Schedule updated to reflect delays in the development of software. Initial Operating Capability has been deleted and Validation/Verification Technical Data Release has been added to reflect final delivery of the product.</p> <p>Schedule: Project Unit 3090:</p> <ol style="list-style-type: none"><li>1. Flight Control System re-design - Schedule updated to reflect a delay in parts delivery and material lead times for Step 1. Step 2's schedule is dependent on the completion of Step 1.</li><li>2. Open Systems Architecture / Cyber Security - Platform Data Service / Ethernet Expansion Device is dependent on the DVE/HMD effort. Schedule has been updated to reflect the delays in the DVE/HMD software development.</li><li>3. Joint Avionics Reconfigurable Virtual Information System - Schedule has been added to support the reallocation of funding from PU 1425 to PU 3090 beginning in FY 2025 and has been updated to reflect the restart/rephasing of the program.</li></ol>		

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A				<b>Project (Number/Name)</b> 1425 / V-22			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1425: V-22	9,975.541	79.258	95.569	32.481	-	32.481	40.463	15.523	0.000	0.000	0.000	10,238.835
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Project MDAP/MAIS Code:** 212

**A. Mission Description and Budget Item Justification**

The V-22 Osprey is an Acquisition Category IC Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the Carrier Onboard Delivery needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command (USSOCOM). The MV-22 variant replaced the CH-46E in the Marine Corps and the CMV-22 variant will replace the C-2A in the Navy. The CV-22 variant replaced the MH-53J and MH-53M and augments the C-130 in the Air Force and USSOCOM. The V-22 is capable of flying over 2,100 nautical miles, with a single refueling, giving the services the advantage of a vertical/short take-off and landing aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development for correction of deficiencies and includes Block B upgrades which encompassed engineering and manufacturing development of new end-items prior to the production incorporation decision as well as Block C suitability and effectiveness development upgrades. Currently converting all Block B to Block C configuration. Capability Development Document interoperability requirements were addressed through a spiral upgrade acquisition strategy. It was the first spiral upgrade providing Key Enabling Department of Defense mandated open systems architecture upgrades for the mission computer hardware and software while simultaneously addressing required interoperability common avionics upgrades and current avionics obsolescence issues. Future development efforts will include pre-planned-product-improvements in the capability development document and re-design efforts to correct critical Reliability, Maintainability and Availability issues in support of readiness Operational Safety Improvement Program as prioritized by the United States Marine Corps (USMC) or an Urgent Universal Needs Statement.

FY 2025 continues Airframe Hardware Development to fund development efforts in support of V-22 Block upgrades, capability upgrades, time on wing, and safety improvement efforts which are critical to the maintaining the platforms tactical relevance in support of Force Design 2030. Continues engineering, logistics, flight test, flight test support and addresses correction of deficiencies and obsolescence. Continues V-22 software development/mission computer obsolescence initiatives such as transition tech demo. Continues Input Quill Assembly re-design related to Hard Clutch Engagement.

FY 2025 continues to support development efforts for the CMV-22 such as: Obsolescence, Center Console re-design, Modular Avionics/Cyber Security Implementation and Fuel Cell obsolescence. Continues Input Quill Assembly re-design related to Hard Clutch Engagement.

FY 2025 continues Open System Architecture/Cyber Security development efforts to provide new capabilities focused on enhancing reliability, survivability, software and hardware modularity, and maturation of robust aircraft data interfaces. Continues risk reduction and development efforts such as Cyber-Resilient interoperability, Modular Avionics/Cyber Security Implementation, Cyber Safe Flight Control improvements, and Cockpit Avionics re-design. Continues research, requirements analysis, and design and development of obsolescence mitigation solutions for aging V-22 Avionics systems to overcome obsolete hardware availability. Replacement systems

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy	<b>Date:</b> March 2024
--	-------------------------

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

will be designed to provide compatibility with all legacy interfaces and functions while resolving deficiencies, meeting expanding needs, and leveraging emerging hardware and software technologies to mitigate future obsolescence and to provide future growth.

FY 2025 continues risk reduction and developmental efforts for improved situational awareness and safety in Degraded Visual Environment (DVE) situations. The system being developed is a Digital Helmet Mounted Display (HMD) integrated with a Synthetic Vision Processor operating in an Ethernet Environment. The DVE/HMD safety improvement is a Deputy Commandant for Aviation priority.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

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

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<b>Title:</b> V-22 Airframe Hardware Development	20.483	19.527	5.673	0.000	5.673
<b>Articles:</b>	-	-	-	-	-
<p><b>Description:</b> The V-22 Airframe Hardware Development continues to fund development efforts in support of V-22 Block upgrades, electrical system capacity efforts, and time on wing/reliability improvement efforts such as testing of Additive Manufacturing processes for selected V-22 components. Continues Aircraft Mission Maneuvering Envelope Expansion and Safety Improvement efforts. Continues engineering, logistics, flight test, flight test support and addresses correction of deficiencies and obsolescence. Continues V-22 software development/sustainment efforts such as transition tech demo and Modular Avionics Mission Computer Obsolescence Initiative re-design. Continues development of particle separation solutions that will improve maintainability and reliability which will facilitate improved mission capable rates and long-term operational success.</p> <p><b>FY 2024 Plans:</b> Continues V-22 software development efforts. Continues development in support of V-22 Block upgrades, Time on Wing/Reliability Improvements such as testing of Additive Manufacturing processes for selected V-22 components. Continues Aircraft Mission Maneuvering Envelope Expansion and Safety Improvement efforts. Continues engineering, logistics, flight test and flight test support. Addresses correction of deficiencies and obsolescence efforts such as air data unit, cockpit interface units, training upgrades and developments, fuel cell and ESFI. Continues reliability improvement efforts as well as re-design efforts to correct critical Reliability, Maintainability and Availability issues in support of readiness Operational Safety Improvement Program to include Input Quill Assembly re-design related to Hard Clutch Engagement. Continues Planetary Pinion and Zinc Nickel.</p> <p><b>FY 2025 Base Plans:</b></p>					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

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

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
<p>Continues V-22 software development efforts. Continues development in support of V-22 Block upgrades, time on wing/reliability improvements such as testing of Additive Manufacturing processes for selected V-22 components. Continues Aircraft Mission Maneuvering Envelope Expansion and Safety Improvement efforts. Continues engineering, logistics, flight test and flight test support. Addresses correction of deficiencies and obsolescence efforts such as air data unit, cockpit interface units, training upgrades and developments. Continues reliability improvement efforts as well as re-design efforts to correct critical reliability, maintainability and availability issues in support of readiness Operational Safety Improvement Program to include Input Quill Assembly re-design related to Hard Clutch Engagement. Continues Planetary Pinion and Zinc Nickel reliability improvements.</p> <p><b>FY 2025 OCO Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease in FY 2025 for Airframe Hardware Development is due to the reallocation of funding from PU 1425 to PU 3090 to fund Flight Control System re-design and to account for the availability of prior year execution balances.</p>					
<p><b>Title:</b> V-22 Propulsion/Mission Care Hardware Development</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Propulsion/Mission Care Hardware Development funds the flight/engine hours that are necessary for the design, development, validation and verification of the V-22 propulsion and power systems at the Patuxent River squadron. In addition, it pays for Rolls Royce to provide engine support and development of the V-22 flight testing.</p> <p><b>FY 2024 Plans:</b> Continues flight/engine hours that are necessary for the design, development, validation, and verification of the V-22 propulsion and power systems at the Patuxent River squadron. Rolls Royce will continue to provide engine support and development of V-22 flight testing.</p> <p><b>FY 2025 Base Plans:</b> N/A</p> <p><b>FY 2025 OCO Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b></p>	1.656	1.924	0.000	0.000	0.000
	-	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy	<b>Date:</b> March 2024
--	-------------------------

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
---	---------	---------	--------------	-------------	---------------

Decrease in FY 2025 for Propulsion/Mission Care Hardware Development is due to the reallocation of funding from PU 1425 to PU 3090.					
---	--	--	--	--	--

<b>Title:</b> V-22 CMV Development	14.752	22.746	13.391	0.000	13.391
------------------------------------	--------	--------	--------	-------	--------

<b>Articles:</b>	-	-	-	-	-
------------------	---	---	---	---	---

**Description:** Continues funding for Obsolescence, Center Console re-design, Flight Control System (FCS) re-design and Modular Avionics/Cyber Security Implementation.

**FY 2024 Plans:**  
Continues funding for the CMV-22 Development effort to perform the COD mission. Development of the Joint Vertical Experimental Application System Software will continue. Continue Modular Avionics software development/sustainment efforts such as Mission Computer obsolescence initiative re-design and modular software. Continue developmental efforts such as Flight Control System re-design, Central Display Unit/ Keyboard Unit obsolescence re-design, Primary Lighting Control Unit re-design, Input Quill Assembly re-design related to Hard Clutch Engagement and Cyber Security implementation. Continue Interoperability development for additional critical capabilities such as Link-16, Terrain Avoidance Warning System II and Mobile Users Objective System. Continue the spiral development of the Required Navigation Performance/Area Navigation capability to upgrade the full precision approach capability and coupled approach. Continue development and integration of JPALS. Support the Future Readiness Initiative to fully automate data ingestion of all applicable data sources to include conditioning, cleansing, transformation, persistence and retrieval from a unified data repository in an organized, ready for use format. Begin Fuel Cell obsolescence re-design and Next Generation Mission Planning development.

**FY 2025 Base Plans:**  
Continues funding for the Modular Avionics software development/sustainment efforts such as Mission Computer obsolescence initiative re-design and modular software. Continues developmental efforts such as FCS re-design, Central Display Unit/Keyboard Unit obsolescence re-design, Input Quill Assembly re-design related to Hard Clutch Engagement and Cyber Security implementation. Continues Interoperability development for additional critical capabilities such as Terrain Avoidance Warning System II and Mobile Users Objective System. Continues the spiral development of the Required Navigation Performance/Area Navigation capability to upgrade the full precision approach capability and coupled approach. Continues development and integration of Joint Precision Approach and Landing System. Continues Fuel Cell obsolescence re-design and Next Generation Mission Planning development.

**FY 2025 OCO Plans:**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
N/A					
<b><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i></b> Decrease in FY 2025 for CMV Development is due to the completion of Link-16 development and to account for the availability of prior year execution balances.					
<b><i>Title:</i></b> V-22 Infrared Suppressor (IRS) Re-design	0.862	0.000	0.000	0.000	0.000
<b><i>Articles:</i></b>	-	-	-	-	-
<b><i>Description:</i></b> IRS re-design and reliability improvement efforts mask the infrared signature of the V-22 aircraft, which increases the operational survivability. The current IRS system fails to meet reliability requirements and continues to be a readiness degrader. V-22 IRS system includes funds for EMD and instrumented flight test of IRS system solutions.					
<b><i>FY 2024 Plans:</i></b> N/A					
<b><i>FY 2025 Base Plans:</i></b> N/A					
<b><i>FY 2025 OCO Plans:</i></b> N/A					
<b><i>Title:</i></b> V-22 Development Support, Test and Evaluation	38.534	25.859	12.250	0.000	12.250
<b><i>Articles:</i></b>	-	-	-	-	-
<b><i>Description:</i></b> Funds Government Engineering and Contractor Engineering, including Follow-On Test & Evaluation (FOT&E), Developmental Test & Engineering (DT&E), and Operational Test & Evaluation (OT&E) for the V-22 flight events. Perform Government oversight. Execute test program risk reduction efforts.					
<b><i>FY 2024 Plans:</i></b> Funds provided for continued support of FOT&E, DT&E and OT&E to include vehicle flight control software updates, mission systems software and hardware updates, inlet distortion, environmental control systems, structural fatigue, Nacelle improvements, Integrated Aircraft Survivability Equipment, Sea Trials, communication systems, navigation systems, weapons systems, DVE/HMD, Joint Avionics Reconfigurable Virtual Information System Mission Computer and CMV developmental upgrades.					
<b><i>FY 2025 Base Plans:</i></b>					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
<p>Funds provided for continued support of FOT&amp;E, DT&amp;E and OT&amp;E to include vehicle flight control software updates, mission systems software and hardware updates, Sea Trial envelope expansion and V-22 CMV developmental upgrades.</p> <p><b>FY 2025 OCO Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease in FY 2025 for Development Support, Test and Evaluation is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Program Product Development efforts and to account for the availability of prior year execution balances.</p>					
<p><b>Title:</b> V-22 Open Systems Architecture/Cyber Security</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Open System Architecture/Cyber Security provides non-proprietary hardware and software agnostic architecture and interfaces, focused on enhancing survivability, maturation of software and hardware modularity, rapid technology and capability insertion, obsolescence mitigation, and maturation of aircraft interfaces to support robust, Cyber-Resilient interoperability and data transfer, storage and routing. The project includes risk reduction and development efforts such as Modular Avionics Architecture, Cyber Security Implementation, and Cyber Safe Flight Control improvements for Control Display Units, Standby Flight Indicators, Keyboard Units, Engine Instrument Crew Alerting System, Primary Lighting Control Unit, Remote Frequency Indicator Selector, Heads-Up Displays, and Flight Director Panel. Provides integrated solutions for Mission Computer Obsolescence mitigation, functional upgrades, Ethernet backbone (High speed Ethernet communication), Ethernet switches and routing functions (Ethernet Expansion Devices) to enable distributed processing. Joint Avionics Reconfigurable Virtual Information System (JARVIS) along with associated JARVI modules and Ethernet connectivity for distributed modular processing are the current open system architecture efforts being developed.</p> <p><b>FY 2024 Plans:</b> Continues requirements analysis, integration studies, integrated designs, risk reduction testing and developmental efforts for Modular Avionics Architecture, Cockpit Avionics obsolescence mitigation, Ethernet backbone, Ethernet Expansion device switches and routing functions. Continues development of JARVIS Mission Computer system and associated JARVI modules for distributed modular processing. Continues the Cockpit Avionics re-design.</p> <p><b>FY 2025 Base Plans:</b></p>	2.971	12.235	0.000	0.000	0.000
	-	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
N/A					
<b>FY 2025 OCO Plans:</b> N/A					
<b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease in FY 2025 for Open Systems Architecture/Cyber Security is due to the reallocation of the JARVIS program from PU 1425 to PU 3090.					
<b>Title:</b> V-22 Degraded Visual Environment/Helmet Mounted Display (DVE/HMD)	0.000	13.278	1.167	0.000	1.167
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> The V-22 Digital HMD will reduce heads down time and provide better situational awareness and crew coordination to improve safety in DVE. The system being developed is a Digital HMD integrated with a Synthetic Vision Processor operating in an Ethernet Environment. The DVE/HMD safety improvement is a Deputy Commandant for Aviation priority.					
<b>FY 2024 Plans:</b> Continues DVE development and system integration efforts to improve safety when conducting reduced visibility landings. Efforts will include requirements analysis, risk reduction and developmental test and qualification efforts in System Integration Labs and on DT aircraft. Begin Operational Flight Test.					
<b>FY 2025 Base Plans:</b> Continues DVE development and system integration efforts to improve safety when conducting reduced visibility landings. Efforts will include requirements analysis, risk reduction and developmental test and qualification efforts in system integration labs and on developmental test aircraft. Begin operational flight test in simulated environment and on aircraft.					
<b>FY 2025 OCO Plans:</b> N/A					
<b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease in FY 2025 for DVE/HMD is due to the ramp down of developmental efforts.					
<b>Accomplishments/Planned Programs Subtotals</b>	79.258	95.569	32.481	0.000	32.481

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

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

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APN 0164: V-22	508.700	27.216	60.175	-	60.175	50.941	0.000	0.000	0.000	0.000	35,284.739
• APN 0590: V-22 Series	226.040	215.997	235.062	-	235.062	287.776	310.835	333.504	342.110	1,768.348	6,279.206
• APN 0605/J0164: V-22 Initial Spares	8.789	30.562	0.016	-	0.016	0.000	0.000	0.000	0.000	830.459	869.826
• RDTE 1160403BB: CV-22 Special Operations, Aviation Systems	11.695	21.619	21.289	-	21.289	28.069	23.445	19.834	0.000	Continuing	Continuing
• RDTE BA07 0401318F: CV-22 USAF BA07	10.121	18.127	16.444	-	16.444	16.878	17.197	17.819	0.000	Continuing	Continuing
• OPN 4213: CMV-22 SCD	270.037	162.273	121.108	-	121.108	99.558	101.374	101.115	103.809	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The V-22 is a post Milestone III ACAT-IC program. As a result of mishaps during and subsequent to V-22 Operational Evaluation (Apr and Dec 00), the program was restructured employing a phased approach to return to flight and tactical introduction. The Contractor and Government defined deficient areas within the program/ aircraft requiring correction prior to return to flight. A Block Upgrade approach was planned, with required efforts identified in Block "A", "B", and "C". Block "A" included those efforts necessary to return the V-22 to safe and operational fleet operations. Block "B" included those efforts necessary to improve the effectiveness and suitability of the aircraft. Block "C" includes mission enhancements like weather radar, cabin effectiveness suitability improvements, i.e., Environmental Control System, and Forward Firing ALE-47. Non-recurring development activities will be initiated and completed for all efforts identified in Block "A", "B", and "C". The Contractor will develop specific statements of work and preliminary specification change notices required to integrate the block upgrade efforts into the baseline Program. A Systems Requirements Review, Initial Design Review, and Final Design Review was held for each of the block efforts so the design maturity could be reviewed and the Government could redirect activities as appropriate. The CV-22 EMD program is also structured in Blocks to define an evolutionary approach to achieving full operational capability. Block "0" is the initial baseline CV-22 variant. Block "10" enhances mission capability with the addition of terrain following radar, additional fuel tanks, additional radios, and Block "20" includes capabilities such as radio frequency and infrared countermeasures improvements. Additional Blocks are in the planning stages to continue the growth process throughout the operational life of the weapon system. The CMV-22 will add (1) the capability to meet the range requirements that the COD mission demands (2) a HF radio to transmit/receive BLOS over water, (3) a PA system for use while transporting passengers in support of the COD mission, (4) an improved cargo handling system, and (5) enhanced fuel jettison system.

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2025 Navy</b>											<b>Date: March 2024</b>				
<b>Appropriation/Budget Activity</b> 1319 / 5						<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A					<b>Project (Number/Name)</b> 1425 / V-22				

<b>Product Development (\$ in Millions)</b>				<b>FY 2023</b>		<b>FY 2024</b>		<b>FY 2025 Base</b>		<b>FY 2025 OCO</b>		<b>FY 2025 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
V-22 Airframe Hardware Dev	Various	Various : Various	195.760	20.483	Jan 2023	19.527	Jan 2024	5.673	Jan 2025	-		5.673	7.723	249.166	-
V-22 Propulsion Hardware Dev	SS/FFP	Rolls-Royce Corp. : Indianapolis, IN	200.781	1.656	Nov 2022	1.924	Nov 2023	0.000		-		0.000	0.000	204.361	204.361
V-22 CMV Development	Various	Various : Various	231.071	14.752	Jan 2023	22.746	Jan 2024	13.391	Jan 2025	-		13.391	26.304	308.264	-
V-22 IRS Re-design	SS/CPFF	Honeywell : Tempe, AZ	6.392	0.862	Aug 2023	0.000		0.000		-		0.000	0.000	7.254	7.254
V-22 Open Systems Architecture / Cyber Security	Various	Various : Various	29.864	2.971	Jul 2023	12.235	Mar 2024	0.000		-		0.000	0.000	45.070	-
V-22 Degraded Visual Environment/Helmet Mounted Display	SS/FPIF	L3 Harris : Waco, TX	18.793	0.000		13.278	Jul 2024	1.167	Jul 2025	-		1.167	0.000	33.238	-
Prior year Prod Dev no longer funded in FYDP	Various	Various : Various	5,319.094	0.000		0.000		0.000		-		0.000	0.000	5,319.094	-
<b>Subtotal</b>			6,001.755	40.724		69.710		20.231		-		20.231	34.027	6,166.447	N/A

**Remarks**  
 Airframe Hardware Development: Decrease in FY 2025 reallocates funding from PU 1425 to PU 3090 to fund Flight Control System re-design and to account for the availability of prior year execution balances.  
 Propulsion Hardware Development: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090.  
 CMV Development: Decrease in FY 2025 is due to the completion of Link-16 development and to account for the availability of prior year execution balances.  
 Open Systems Architecture: Decrease in FY 2025 is due to the reallocation of the Joint Avionics Reconfigurable Virtual Information System program from PU 1425 to PU 3090.  
 Degraded Visual Environment/Helmet Mounted Display: Decrease in FY 2025 is due to the ramp down of developmental efforts.

<b>Support (\$ in Millions)</b>				<b>FY 2023</b>		<b>FY 2024</b>		<b>FY 2025 Base</b>		<b>FY 2025 OCO</b>		<b>FY 2025 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
V-22 MV Govt Engineering Sppt	WR	Various : Pax River, MD	1,131.749	5.882	Nov 2022	4.024	Nov 2023	1.444	Nov 2024	-		1.444	1.472	1,144.571	-
V-22 CMV Govt Engineering Sppt	WR	Various : Pax River, MD	51.957	3.054	Nov 2022	2.704	Nov 2023	2.660	Nov 2024	-		2.660	4.226	64.601	-

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

<b>Support (\$ in Millions)</b>				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			
Prior Year Support no longer funded in the FYDP	Various	Various : Various	189.718	0.000		0.000		0.000		-		0.000	0.000	189.718	-
<b>Subtotal</b>			1,373.424	8.936		6.728		4.104		-		4.104	5.698	1,398.890	N/A

**Remarks**  
 MV Government Engineering Support: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Product Development efforts.  
 CMV Government Engineering Support: Decrease in FY 2025 is due to CIVPERS reductions.

<b>Test and Evaluation (\$ in Millions)</b>				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 : Pax River, MD	1,127.724	17.457	Nov 2022	12.428	Nov 2023	5.606	Nov 2024	-		5.606	12.161	1,175.376	-
Operational Test & Evaluation (OT&E)	WR	OT&E Force : Norfolk, VA	72.960	4.470	Dec 2022	4.000	Dec 2023	2.000	Dec 2024	-		2.000	3.000	86.430	-
Live Fire Test & Evaluation (LFT&E)	WR	NAWCWD : China Lake, CA	3.347	0.155	Nov 2022	0.000	Nov 2023	0.000		-		0.000	0.000	3.502	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	48.200	0.000		0.000		0.000		-		0.000	0.000	48.200	-
<b>Subtotal</b>			1,252.231	22.082		16.428		7.606		-		7.606	15.161	1,313.508	N/A

**Remarks**  
 Development Test & Evaluation: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Program Product Development efforts and to account for the availability of prior year execution balances.  
 Operational Test & Evaluation: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Program Product Development efforts.

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

<b>Management Services (\$ in Millions)</b>				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			
V-22 Engineering Tech Sppt	Various	Various : Various	1,052.301	0.429	Dec 2022	0.782	Dec 2023	0.000		-		0.000	0.000	1,053.512	-
V-22 Management Sppt Svc	Various	Various : Various	159.845	2.558	Dec 2022	0.298	Jan 2024	0.000		-		0.000	0.000	162.701	-
V-22 Program Mgmt Support	WR	NAWCAD : Pax River, MD	75.466	3.941	Nov 2022	0.908	Nov 2023	0.000		-		0.000	0.000	80.315	-
V-22 CMV Engineering Tech Sppt	Various	Various : Various	1.463	0.350	Jan 2023	0.470	Jan 2024	0.480	Jan 2025	-		0.480	0.980	3.743	-
V-22 Travel	WR	Various : Various	17.567	0.158	Sep 2023	0.185	Sep 2024	0.000		-		0.000	0.000	17.910	-
V-22 CMV Travel	WR	Various : Various	0.402	0.080	Sep 2023	0.060	Sep 2024	0.060	Sep 2025	-		0.060	0.120	0.722	-
Prior Year Mgmt Svcs no longer funded in the FYDP	Various	Various : Various	41.087	0.000		0.000		0.000		-		0.000	0.000	41.087	-
<b>Subtotal</b>			1,348.131	7.516		2.703		0.540		-		0.540	1.100	1,359.990	N/A

**Remarks**  
 Engineering Tech Sppt: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Program Product Development efforts.  
 Management Sppt Svc: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Program Product Development efforts.  
 Program Mgmt Support: Decrease in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090 to support V-22 Improvement Program Product Development efforts.  
 CMV Engineering Tech Sppt: Increase in FY 2025 is due to inflation.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	9,975.541	79.258	95.569	32.481	-	32.481	55.986	10,238.835	N/A

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Navy</b>		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

Hardware Development		FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Planetary Pinion	Milestones	NRE								Implementation																			
	SETR Reviews					CDR	SVR/PRR																						
Zinc Nickel	Milestones	NRE								Implementation																			
	SETR Reviews	SRR																											
		Software Data Set Development																											
		Flight Test / Integrated Development Testing																											
		Operational Testing																											

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

<b>CMV Development</b>	FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Contract Events	[Redacted]				CMV ECP				△ FOC																			
	[Redacted]								Capability FOT&E																			

**UNCLASSIFIED**




<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Navy</b>		<b>Date: March 2024</b>
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

Infrared Suppressor Redesign		FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
IRS Reliability Improvement	Honeywell	NRE Contract								Step 2- Forced/Retrofit Kit Contract																			
	SETR	PDR/CDR				TRR				SVR																			
	Bell-Boeing	Bell-Boeing Support IDIQ				IRS FST Post-CDR Support																							
	Flight Test									IRS Flight Test																			

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

	FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Open Systems</b> <i>Architecture: JARVIS</i>																												
<b>Milestones</b>	Contract Restart 				 HBR																							
<b>Test Events</b>									Start HW Qual Test																			

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Navy</b>		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

DVE/HMD	FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Milestones	■ HW CDR				□ SW CDR																							
Test Events									□ MFS Testing				▽ Val/Ver/ TD Release															
Contract Events													○ Lot 3 Opt E				□ DT				□ OT							
																	○ Lot 4 Opt E											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2025 Navy</b>		<b>Date: March 2024</b>
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>V-22 Hardware Development</i></b>				
Reviews: Reviews: Critical Design Review	4	2023	4	2023
Reviews: Reviews: System Verification Review	2	2024	2	2024
Reviews: Reviews: Program Requirements Review	2	2024	2	2024
Reviews: Reviews: System Requirement Review	2	2023	2	2023
Test & Evaluation: Development Test: Flight Test / Integrated Development Testing	1	2023	4	2026
Test & Evaluation: Operational Test: Operational Testing	1	2023	4	2026
<b><i>V-22 CMV Development</i></b>				
Milestone: Milestone: Full Operational Capability	3	2024	3	2024
Test & Evaluation: Operational Test: Follow-On Operational Test and Evaluation	1	2023	4	2025
<b><i>V-22 Infrared Suppressor (IRS) Re-design</i></b>				
Reviews: Reviews: Preliminary Design Review / Critical Design Review	1	2023	1	2023
Reviews: Reviews: Test Readiness Review	3	2024	3	2024
Reviews: Reviews: System Verification Review	2	2025	2	2025
Test & Evaluation: Operational Test: Flight Testing	4	2024	1	2025
<b><i>V-22 Open System Architecture / Cyber Security</i></b>				
Reviews: Reviews: Integrated Baseline Review	1	2024	1	2024
Test and Evaluation: Operational Test: Hardware Qualification Test	2	2024	4	2024
Contract Award: Contract Award: Joint Avionics Reconfigurable Virtual Information System Contract Award (JARVIS)	2	2023	2	2023
<b><i>V-22 Degraded Visual Environment / Helmet Mounted Display Development</i></b>				
Reviews: Reviews: HW Critical Design Review	1	2023	1	2023
Reviews: Reviews: SW Critical Design Review	2	2024	2	2024

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 1425 / V-22
--	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: Development Test: Developmental Testing	4	2026	1	2027
Test and Evaluation: Operational Test: MFS Testing	2	2025	3	2025
Test and Evaluation: Operational Test: Operational Testing	2	2027	4	2027
Contract Award: Contract Award: Lot 3 Option Exercise	3	2026	3	2026
Contract Award: Contract Award: Lot 4 Option Exercise	3	2027	3	2027

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy										<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A				<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3090: V-22 Improvement Program	25.899	27.225	42.028	76.950	-	76.950	96.496	93.130	112.312	114.666	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The V-22 Osprey provides a dual-piloted, multi-engine, Vertical/Short Takeoff and Landing, medium lift aircraft for worldwide combat, combat support, combat service support, and Special Operations missions. V-22 Product Improvements addresses requirements necessary to meet the aircraft capabilities specified in the approved Capability Development Document. Efforts included in this Project provide near and long-term improvements to the fleet, addressing deficiencies, systems safety, obsolescence, readiness, reliability, supportability, and relevance in any designated battlespace. Efforts include hardware and software development associated with increased performance capability, avionics upgrades and improvements, increased system processing capability, and the integration with other organic and non-organic systems.

FY 2025 continues Airframe Hardware Development in support of V-22 Block upgrades, electrical system capacity efforts, time on wing/reliability improvements efforts, Aircraft Mission Maneuvering Envelope Expansion and Safety Improvement efforts. Continues engineering, logistics, flight test, flight test support and addresses correction of deficiencies and obsolescence. Continues efforts to resolve Fuel Cell obsolescence issues.

FY 2025 continues Propulsion/Mission Care Hardware Development to fund the flight/engine hours that are necessary for the design, development, validation and verification of the V-22 propulsion and power systems at the Patuxent River squadron. Rolls-Royce will continue to provide engine support and development of V-22 flight testing.

FY 2025 continues Flight Control System re-design, which will address obsolescence issues, mitigate deficiencies and provide improved capabilities through hardware and software upgrades.

FY 2025 continues Open Systems Architecture/Cyber Security research, requirements analysis and development of obsolescence mitigation solutions for aging V-22 avionics systems to overcome obsolete hardware availability. Replacement systems will be designed to provide compatibility with all legacy interfaces and functions while resolving deficiencies, meeting expanding needs, and leveraging emerging hardware and software technologies to mitigate future obsolescence.

FY 2025 continues development of the Joint Avionics Reconfigurable Virtual Information System mission computer and associated JARVI modules for distributed modular processing, which will add additional memory and processing capacity, address obsolescence issues, add software safety processes, and include Cybersecurity design concepts from the ground up.

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

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
<b>Title:</b> V-22 Airframe Hardware Development	2.114	7.696	12.407	0.000	12.407

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program

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

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
<p align="right"><b>Articles:</b></p> <p><b>Description:</b> The V-22 Airframe Hardware Development funds development efforts in support of V-22 Block upgrades, capacity upgrades, time on wing/reliability improvements efforts, Aircraft Mission Maneuvering Envelope Expansion, and Safety Improvement efforts. Continues engineering, logistics, flight test, flight test support, and addresses correction of deficiencies and obsolescence which are critical to maintaining the platforms tactical relevance in support of Force Design 2030.</p> <p><b>FY 2024 Plans:</b> Continues development in support of V-22 Block upgrades, Time on Wing/Reliability Improvements such as testing of Additive Manufacturing processes for selected V-22 components, Aircraft Mission Maneuvering Envelope Expansion, and Safety Improvement efforts. Continues engineering, logistics, flight test, flight test support, and addresses correction of deficiencies and obsolescence efforts. Continues reliability improvement efforts as well as re-design efforts to correct critical Reliability, Maintainability, and Availability issues in support of readiness such as Pitch Change Link Bearing re-design.</p> <p><b>FY 2025 Base Plans:</b> Continues development in support of V-22 Block upgrades, time on wing/reliability improvements such as testing of Additive Manufacturing processes for selected V-22 components, Aircraft Mission Maneuvering Envelope Expansion, and Safety Improvement efforts. Continues engineering, logistics, flight test, flight test support, and addresses correction of deficiencies and obsolescence efforts such as fuel cell. Continues reliability improvement efforts as well as re-design efforts to correct critical reliability, maintainability, and availability issues in support of readiness.</p> <p><b>FY 2025 OCO Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Increase in FY 2025 for Airframe Hardware Development is due to the reallocation of flight test funding from PU 1425 to PU 3090.</p>	-	-	-	-	-
<p><b>Title:</b> V-22 Propulsion / Mission Care Hardware Development</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Propulsion/Mission Care Hardware Development funds the flight/engine hours that are necessary for the design, development, validation and verification of the V-22 propulsion and power systems at the</p>	0.000 -	0.000 -	2.694 -	0.000 -	2.694 -

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy	<b>Date:</b> March 2024
--	-------------------------

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program
--	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>Patuxent River squadron. In addition, it pays for Rolls Royce to provide engine support and development of the V-22 flight testing.</p> <p><b>FY 2024 Plans:</b> N/A</p> <p><b>FY 2025 Base Plans:</b> Continues flight/engine hours that are necessary for the design, development, validation, and verification of the V-22 propulsion and power systems at the Patuxent River squadron. Rolls Royce will continue to provide engine support and development of V-22 flight testing.</p> <p><b>FY 2025 OCO Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Increase in FY 2025 for Propulsion/Mission Care Hardware Development is due to the reallocation of the effort and funding from PU 1425 to PU 3090.</p>					
<p><b>Title:</b> V-22 Flight Control System (FCS) Re-Design</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The FCS re-design will address obsolescence issues, mitigate current system deficiencies and provide a foundation for improved aircraft handling qualities through hardware and software upgrades. The re-design will correct critical reliability and maintainability issues to increase mission effectiveness, provide additional safety, and improve readiness.</p> <p><b>FY 2024 Plans:</b> Continues development of hardware and software architecture upgrades to mitigate obsolescence and data throughput constraints to include Flight Control Computer, Cockpit Interface Unit, and Flight Test Interface Panel. Software language upgrade development in the Cross Channel Data Link and Flight Control Computer Operational Flight program from assembly language to a Higher Order Language for future software maintenance efficiency and capability. Continues Non-Recurring Engineering to implement Critical Design Review functions, mature box level design and validate all technical requirements in the lab leading up to Test Readiness Review to go to aircraft developmental test.</p> <p><b>FY 2025 Base Plans:</b> Continues development of hardware and software architecture upgrades to mitigate obsolescence and data throughput constraints to include Flight Control Computer, Cockpit Interface Unit, and Flight Test</p>	16.966	21.102	17.857	0.000	17.857
	-	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
---	----------------	----------------	---------------------	--------------------	----------------------

Interface Panel. Software language upgrade development in the Cross Channel Data Link and Flight Control Computer Operational Flight program from assembly language to a Higher Order Language for future software maintenance efficiency and capability. Continues Non-recurring engineering to implement critical design review functions, mature box level design and validate all technical requirements in the lab leading up to test readiness review to go to aircraft developmental test.

**FY 2025 OCO Plans:**  
N/A

**FY 2024 to FY 2025 Increase/Decrease Statement:**  
Decrease in FY 2025 for FCS re-design is due to the completion of the Preliminary Design Review and reflects a delay in parts delivery and material lead time.

**Title:** V-22 Open Systems Architecture/Cyber Security

**Articles:**

7.276	11.461	7.838	0.000	7.838
-	-	-	-	-

**Description:** Open System Architecture/Cyber Security provides non-proprietary hardware and software agnostic architecture and interfaces, focused on enhancing survivability, maturation of software and hardware modularity, rapid technology and capability insertion, obsolescence mitigation, and maturation of aircraft interfaces to support robust, Cyber-Resilient interoperability and data routing/transfers. The project includes risk reduction and development efforts such as Modular Avionics Architecture, Cyber Security Implementation, and Cyber Safe Flight Control improvements for Control Display Units, Standby Flight Indicators, Keyboard Unit, Engine Instrument Crew Alerting System, Remote Frequency Indicator Selector, Heads-Up Displays, and Flight Director Panel. Provides integrated solutions for Mission Computer Obsolescence mitigation, functional upgrades, Ethernet backbone (High speed Ethernet communication), Ethernet switches and routing functions to enable distributed processing.

**FY 2024 Plans:**  
Continues requirements analysis, integration studies, integrated designs, risk reduction testing and developmental efforts for Modular Avionics Architecture, Cockpit Avionics obsolescence mitigation, Ethernet backbone, Ethernet Expansion device switches and routing functions. Complete Standby Flight Instrument qualification and integration testing.

**FY 2025 Base Plans:**  
Continues requirements analysis, integration studies, integrated designs, risk reduction testing and developmental efforts for Modular Avionics Architecture, Cockpit Avionics obsolescence mitigation, Ethernet

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program
--	---	---

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

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
backbone, Ethernet Expansion device switches and routing functions. Complete Standby Flight Instrument qualification and integration testing.  <b>FY 2025 OCO Plans:</b> N/A  <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease in FY 2025 for Open Systems Architecture/Cyber Security is due to the completion of the Critical Design Review and the ramp down of developmental efforts.					
<b>Title:</b> V-22 Joint Avionics Reconfigurable Virtual Information System (JARVIS)  <b>Description:</b> Joint Avionics Reconfigurable Virtual Information System (JARVIS), along with associated JARVI modules and ethernet connectivity for distributed modular processing, are the current open system architecture efforts being developed to replace the existing Integrated Avionics Processor mission computer. This change is driven by obsolescence, cybersecurity vulnerabilities and diminishing manufacturing sources.  <b>FY 2024 Plans:</b> N/A  <b>FY 2025 Base Plans:</b> Continues JARVIS software development, system integration, risk reduction testing, and developmental and qualification efforts for JARVIS mission computer system and associated JARVI modules for distributed modular processing.  <b>FY 2025 OCO Plans:</b> N/A  <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Increase in FY 2025 for JARVIS is due to the reallocation of the effort and funding from PU 1425 to PU 3090.	0.000	0.000	6.535	0.000	6.535
<b>Articles:</b>	-	-	-	-	-
<b>Title:</b> V-22 Development Support, Test, and Evaluation  <b>Description:</b> Funds Government Engineering and Contractor Engineering, including Follow-On Test & Evaluation (FOT&E), Developmental Test & Engineering (DT&E), and Operational Test & Evaluation (OT&E) for the V-22 flight events. Perform government oversight. Execute test program risk reduction efforts.	0.869	1.769	29.619	0.000	29.619
<b>Articles:</b>	-	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
<p><b>FY 2024 Plans:</b> Funds provided for continued support of FOT&amp;E, DT&amp;E and OT&amp;E to include vehicle flight control updates, mission systems software and hardware updates and Sea Trials envelope expansion.</p> <p><b>FY 2025 Base Plans:</b> Funds provided for continued support of FOT&amp;E, DT&amp;E and OT&amp;E to include vehicle flight control software updates, mission systems software and hardware updates, Hard Clutch Engagement efforts, environmental control systems, structural fatigue, Nacelle Improvements, Integrated Aircraft Survivability Equipment, Sea Trials, communication systems, navigation systems, weapons systems, Degraded Visual Environment/Helmet Mounted Display, JARVIS mission computer and CMV developmental upgrades.</p> <p><b>FY 2025 OCO Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> FY 2025 increase in Development Support, Test, and Evaluation is due to the shift of efforts and funding from PU 1425 to PU 3090.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	27.225	42.028	76.950	0.000	76.950

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APN 0164: V-22	508.700	27.216	60.175	-	60.175	50.941	0.000	0.000	0.000	0.000	35,284.739
• APN 0590: V-22 Series	226.040	215.997	235.062	-	235.062	287.776	310.835	333.504	342.110	1,768.348	6,279.206
• APN 0605/J0164: V-22 Initial Spares	8.789	30.562	0.016	-	0.016	0.000	0.000	0.000	0.000	830.459	869.826
• RDTE 1160403BB: CV-22 Special Operations, Aviation Systems	11.695	21.619	21.289	-	21.289	28.069	23.445	19.834	0.000	Continuing	Continuing
• RDTE BA07 0401318F: CV-22 USAF BA07	10.121	18.127	16.444	-	16.444	16.878	17.197	17.819	0.000	Continuing	Continuing
• OPN 4213: CMV-22 SCD	270.037	162.273	121.108	-	121.108	99.558	101.374	101.115	103.809	Continuing	Continuing

**Remarks**

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 <i>Improvement Program</i>
--	---	--

**D. Acquisition Strategy**

V-22 Product Improvements will include design and engineering studies, cost-benefit analyses, and risk-reduction efforts to address improvements for readiness, aircraft capability, safety, component reliability, maintainability, software, and obsolescence.

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program
--	---	---

<b>Product Development (\$ in Millions)</b>				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			
V-22 Airframe Hardware Development	Various	Various : Various	2.842	2.114	Jan 2023	7.696	Jan 2024	12.407	Jan 2025	-		12.407	Continuing	Continuing	Continuing
V-22 Propulsion / Mission Care Hardware Development	SS/FFP	Rolls Royce : Indianapolis, IN	0.000	0.000		0.000		2.694	Nov 2024	-		2.694	Continuing	Continuing	Continuing
V-22 Flight Control System Re-Design	SS/CPIF	Bell Boeing : Ridley Park, PA	13.565	16.966	Feb 2023	21.102	Jun 2024	17.857	Feb 2025	-		17.857	Continuing	Continuing	Continuing
V-22 Open Systems Architecture/Cyber Security	Various	Various : Various	7.137	7.276	Apr 2023	11.461	Mar 2024	7.838	Apr 2025	-		7.838	Continuing	Continuing	Continuing
V-22 Joint Avionics Reconfigurable Virtual Information System	SS/IDIQ	Mercury Mission : Torrance, CA	0.000	0.000		0.000		6.535	Jan 2025	-		6.535	Continuing	Continuing	Continuing
<b>Subtotal</b>			23.544	26.356		40.259		47.331		-		47.331	Continuing	Continuing	N/A

**Remarks**  
 Hardware Development: Increase in FY 2025 for Airframe Hardware Development is due to the reallocation of flight test funding from PU 1425 to PU 3090.  
 Propulsion/Mission Care Hardware Development: Increase in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090.  
 Flight Control System Re-design: Decrease in FY 2025 for FCS re-design is due to the completion of the Preliminary Design Review and reflects a delay in parts delivery and material lead times.  
 Open Systems Architecture/Cyber Security: Decrease in FY 2025 is due to the completion of the Critical Design Review and the ramp down of developmental efforts.  
 Joint Avionics Reconfigurable Virtual Information System: Increase in FY 2025 is due to the reallocation of funding from PU 1425 to PU 3090.

<b>Support (\$ in Millions)</b>				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			
V-22 Gov't Engineering Support	WR	NAWCAD : Pax River, MD	1.272	0.598	Nov 2022	1.259	Nov 2023	5.310	Nov 2024	-		5.310	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.272	0.598		1.259		5.310		-		5.310	Continuing	Continuing	N/A

**Remarks**  
 Government Engineering Support: Increase in FY 2025 is due to the reallocation of efforts and associated support from PU 1425 to PU 3090.

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program
--	---	---

<b>Test and Evaluation (\$ in Millions)</b>				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 : Pax River, MD	0.000	0.000		0.000		12.848	Nov 2024	-		12.848	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	OT&E Force : Norfolk, VA	0.000	0.000		0.000		2.660	Dec 2024	-		2.660	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		0.000		15.508		-		15.508	Continuing	Continuing	N/A

**Remarks**  
Increases to DT&E and OT&E in FY 2025 are due to the reallocation of efforts and associated test and evaluation funding from PU 1425 to PU 3090.

<b>Management Services (\$ in Millions)</b>				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			
V-22 Engineering Tech Sppt	Various	Various : Various	0.000	0.000		0.000		0.798	Dec 2024	-		0.798	Continuing	Continuing	Continuing
V-22 Management Sppt Svc	Various	Various : Various	0.000	0.000		0.000		2.667	Dec 2024	-		2.667	Continuing	Continuing	Continuing
V-22 Program Mgmt Support	WR	NAWCAD : Pax River, MD	1.083	0.271	Nov 2022	0.500	Nov 2023	5.151	Nov 2024	-		5.151	Continuing	Continuing	Continuing
V-22 Travel	WR	Various : Various	0.000	0.000		0.010	Sep 2024	0.185	Sep 2025	-		0.185	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.083	0.271		0.510		8.801		-		8.801	Continuing	Continuing	N/A

**Remarks**  
Increases to Management Services in FY 2025 are due to the reallocation of efforts and associated support from PU 1425 to PU 3090.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		25.899	27.225	42.028	76.950	-	76.950	Continuing	Continuing	N/A

**Remarks**

**UNCLASSIFIED**

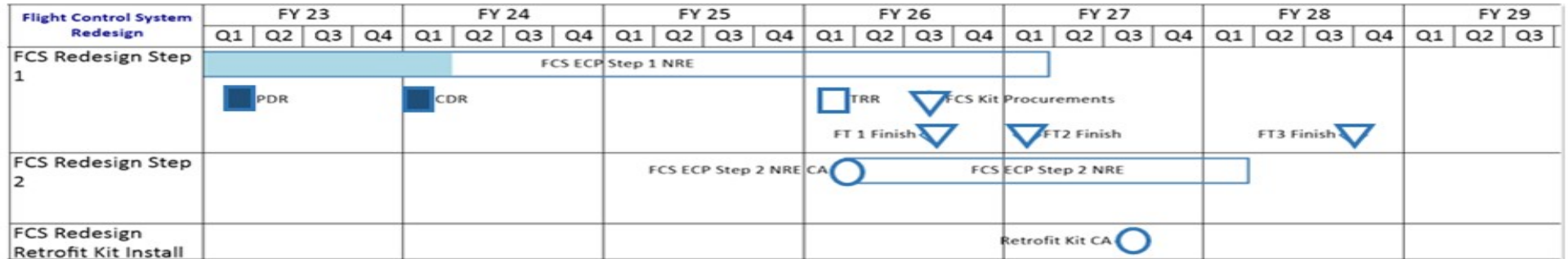
<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Navy</b>		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program

Hardware Development	FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Airframe Hardware Development									Flight Test / Integrated Developmental Testing																			
													Operational Testing															

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program
--	---	---



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Navy</b>		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program

Open Systems Architecture: Cyber Security	PDS/EED	FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Milestones																△ <sup>IOC</sup>													
SETR Reviews		■ <sup>SRR</sup>				■ <sup>PDR</sup>	□ <sup>CDR</sup>			□ <sup>TRR</sup>																			
Contract Events		● <sup>Phase 3 CA</sup>												○ <sup>Kit Production CA</sup>															
Test Events										□ <sup>DT</sup>				□ <sup>OT</sup>															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Navy</b>																	<b>Date: March 2024</b>							
<b>Appropriation/Budget Activity</b> 1319 / 5										<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A							<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program							

<b>JARVIS</b>	FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Milestones																	FCA/PCA	✓	PRR									
Test Events													MV/CMV Flight Clearance	✓							MV/CMV Flight Test							

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2025 Navy</b>		<b>Date: March 2024</b>
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Hardware Development</b>				
Test & Evaluation: Developmental Test: Flight Test / Integrated Development Testing	1	2023	4	2029
Operational Test: Operational Testing	1	2023	4	2029
<b>Flight Control System Re-Design</b>				
Reviews: Reviews: Preliminary Design Review	1	2023	1	2023
Reviews: Reviews: Critical Design Review	1	2024	1	2024
Reviews: Reviews: Test Readiness Review	1	2026	1	2026
Test & Evaluation: Operational Test: Flight Test - 1	3	2026	3	2026
Test & Evaluation: Operational Test: Flight Test - 2	1	2027	1	2027
Test & Evaluation: Operational Test: Flight Test - 3	3	2028	3	2028
Contract Award: Contract Award: Step 2 Contract Award	1	2026	1	2026
Production Milestones: Production Milestones: Contract Award	3	2026	3	2026
<b>Open Systems Architecture / Cyber Security</b>				
Reviews: Reviews: Systems Requirements Review	2	2023	2	2023
Reviews: Reviews: Preliminary Design Review	1	2024	1	2024
Reviews: Reviews: Critical Design Review	3	2024	3	2024
Reviews: Reviews: Test Readiness Review	2	2025	2	2025
Reviews: Reviews: Initial Operational Capability	3	2026	3	2026
Test & Evaluation: Developmental Test: Developmental Testing	4	2024	3	2025
Test & Evaluation: Operational Test: Operational Testing	4	2025	3	2026
Contract Award: Contract Award: Platform Data Service / Ethernet Expansion Device	1	2023	1	2023
Production Milestones: Production Milestones: Kit Production Contract Award	1	2026	1	2026
<b>Joint Avionics Reconfigurable Virtual Information System</b>				

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604262N / V-22A	<b>Project (Number/Name)</b> 3090 / V-22 Improvement Program
--	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Reviews: Reviews: Functional Configuration Audit	3	2027	3	2027
Reviews: Reviews: Physical Configuration Audit	3	2027	3	2027
Reviews: Reviews: Program Requirements Review	4	2027	4	2027
Test & Evaluation: Operational Test: MV / CMV Flight Test	1	2027	3	2027