Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy											Date: April 2022	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204136N *I F/A-18 Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	5,624.931	179.099	219.224	238.974	-	238.974	247.944	266.630	264.556	217.516	Continuing	Continuing
1662: *F/A-18 Improvement*	4,637.542	123.089	145.613	177.710	-	177.710	226.596	253.265	252.863	205.756	397.688	6,420.122
2065: *F/A-18 Radar Upgrade*	760.453	8.048	7.678	11.246	-	11.246	10.792	9.536	10.885	10.938	Continuing	Continuing
2071: *F/A-18 Block III*	213.614	26.147	31.471	47.052	-	47.052	8.889	2.653	0.000	0.000	0.000	329.826
9099: *Physiological Episodes*	0.000	5.404	4.462	2.966	-	2.966	1.667	1.176	0.808	0.822	Continuing	Continuing
9999: *Congressional Adds*	13.322	16.411	30.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	59.733

A. Mission Description and Budget Item Justification

The F/A-18 is required to perform multiple missions. The continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability to maintain the platform's tactical relevance in support of Navy Aviation Plan 2030.

Development continues for a platform solution to threat Advanced Electronic Attack and Counter-Electronic Attack (CEA). F/A-18 solutions to CEA include upgrades to existing sensors such as F/A-18 Radar Upgrade, Infrared Search and Track Block I/II, and development of future tactical data fusion that follows previous Common Tactical Picture (CTP) risk reduction efforts. Tactical data fusion capability is the next step in expanding the F/A-18E/F contributions to the force war fighting capability by combining multiple aircraft and sensor inputs, that effectively extends the engagement range while maximizing sensors and weapons. Incremental improvements continue with Multi-System Integration (MSI), Multi-Ship Ranging (MSR), and other algorithm improvements that are driven by sensor advancements, and efforts designed to increase aircraft lethality and kill chain effectiveness. Development and fleet delivery of special purpose integrated solution designated by Speed to Fleet by commanders, such as PACFLT Tactical Edge Network Targeting in a Contested Long-range Environment (TENTaCLE), continue with dedicated resources and approved action plan. Software Modernization R&D efforts continue with new operating environment (hardware and software solutions) designed to take advantage of rapid software integration and security improvements that harden and protect the aircraft and weapon systems. The effort includes Model Based Systems Engineering (MBSE) tools that reduce future costs and schedule of technology insertion.

Capabilities of the F/A-18 weapon system and ancillary equipment require upgrades to accommodate and incorporate new and enhanced weapons and advances in technology to respond effectively to emerging future threats. Future integrated Carrier Air Wing Concept of Operations (CONOPS) demand changes to the base line Block II Super Hornet. Development and Operational Testing for Block III Super Hornet are required with incremental updates to mission computer software and fusion system will be required as fleet takes delivery of aircraft. Continuation of F/A-18 Block III development and improvements which will be incorporated in the near term with a combination of forward fit production line incorporation and retrofit modifications to the aircraft already planned as part of the Service Life Modification (SLM) Plan. Additionally, Block III system and other technology solution development will support NGAD risk reduction activities.

USMC upgrades to the platform are being developed; to include integration and capability expansion of Active Electronically Scanned Array (AESA) Radar for F/A-18 A-D, evaluation and development of an Automatic Ground Collision Avoidance System (AUTOGCAS) for all F/A-18 variants, development of increased sensor and

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Electronic Warfare (EW) capability for F/A-18 A-D, weapons carriage and employment capability expansion, and enhancement of Mission Computer (MC) processing and memory capability.

Funding for Naval Aviation Physiological Episode (PE) mitigation and root cause investigation in aircraft.

Funding for the Digital Video Map Computer-Upgrade (DVMC-U)/Advanced Crew Station (ACS) Improved Tactical Displays which will enable Panoramic "Big Picture" view of the Battle Space for improved weapons employment and engagement. Leveraging completed work from F/A-18A-D to include the development of an AUTOGCAS for the F/A-18E/F and EA-18G is a logical extension of the DVMC-Upgrade using modifications to the Terrain Avoidance Warning System (TAWS) resident in the existing DVMC in fatal mishap prevention.

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. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	185.084	189.224	0.000	-	0.000
Current President's Budget	179.099	219.224	238.974	-	238.974
Total Adjustments	-5.985	30.000	238.974	-	238.974
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	30.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.985	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	238.974	-	238.974

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 9999: *Congressional Adds*		
Congressional Add: *Noise reduction research*	0.000	4.000
Congressional Add: *Beacon Obsolescence Issues*	2.896	0.000
Congressional Add: *Fifth Generation Sensor Fusion Study*	9.654	0.000
Congressional Add: *Growler Noise Mitigation*	3.861	0.000

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Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Congressional Add: *Training technology*	0.000	10.000
Congressional Add: *Civil instrument landing system*	0.000	3.000
Congressional Add: *Solid state light off detector*	0.000	8.000
Congressional Add: *Neural network algorithms on advanced processors*	0.000	5.000
Congressional Add Subtotals for Project: 9999	16.411	30.000
Congressional Add Totals for all Projects	16.411	30.000

Change Summary Explanation

Cost:
1662: The 2023 funding request was reduced by $7.451 million to account for availability of prior year execution balances.
2065: Not applicable
2071: FY 2023 funding request was decreased by $2.813 million to account for availability of prior year execution balances.
9099: FY 2023 funding request was decreased by $0.964 million to account for availability of prior year execution balances.
9999: Not applicable

Technical:
1662: Not applicable
2065: Not Applicable
2071: Not Applicable
9099: Not Applicable
9999: Not Applicable

Schedule:
1662:
- Updated AUTOGCAS Design and Development to complete from Q2 FY21 to Q1 FY23
- Updated Flight Plan H16 from Q4 FY21 to Q4 FY22
- Updated ACS/DVMC-U Integration start from 1QFY22 to 3QFY22
- Revamped the MSI/CTP schedule to better align with agile work and the scheduled planning increments
- Added MSI/CTP 29C* to the schedule and completing Q4 FY21
- Added 31C and details to the schedule.
- Updated H16 and H16 (BLK III) to H16 (Agile)
- Updated MSI/CTP H16 to complete from Q2 FY21 to Q4 FY22

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- MSI/CTP added H16 Agile Fleet Releases
- MSI/CTP added H16 Agile OTRR events
- Updated H18 (CCD&E) to H18 (Agile)
- Updated MSI/CTP H20 to H20 Agile
- MSI/CTP removed H22 (CCD&I)
- Added schedule for Beyond Line of Sight (BLOS)
- Added schedule for Network Cyber Defense
- Moved Physiological Episodes Schedule to PU: 9099 in this PE
- Extended Obsolescence redesign end from Q1 FY22 to Q4 FY27
- Added Obsolescence Engineering Support Q1 FY21 to Q4 FY27

2065: Not applicable

2071:
- Removed Retrofit Milestones (APN5 - 0525) ECP-6503

9099:
- Extended Pressure Testing from completing in Q4 FY20 to Q2 FY22

9999: Added schedules for Noise Reduction Research, Civil Instrument Landing System, Solid State Light Off Detector, Neural Network Algorithms on Advanced Processors and Training Technology.

FY 2023 funding increase reflects the fact that the FY 2022 President’s Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 1662 / *F/A-18 Improvement*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
1662: *F/A-18 Improvement*	4,637.542	123.089	145.613	177.710	-	177.710	226.596	253.265	252.863	205.756	397.688	6,420.122
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F/A-18 is required to perform multiple missions. The continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability to maintain the platform's tactical relevance in support of Navy Aviation Plan 2030.

Development continues for a platform solution to threat Advanced Electronic Attack and Counter-Electronic Attack (CEA). F/A-18 solutions to CEA include upgrades to existing sensors such as F/A-18 Radar Upgrade, Infrared Search and Track Block I/II, and development of future tactical data fusion that follows previous Common Tactical Picture (CTP) risk reduction efforts. Tactical data fusion capability is the next step in expanding the F/A-18E/F contributions to the force war fighting capability by combining multiple aircraft and sensor inputs, that effectively extends the engagement range while maximizing sensors and weapons. Incremental improvements continue with Multi-System Integration (MSI), Multi-Ship Ranging (MSR), and other algorithm improvements that are driven by sensor advancements, and efforts designed to increase aircraft lethality and kill chain effectiveness. Development and fleet delivery of special purpose solutions designated by Speed to Fleet by commanders, such as PACFLT Tactical Edge Network Targeting in a Contested Long-range Environment (TENTaCLE), continue with dedicated resources and approved action plan. Software Modernization R&D efforts continue with new operating environment (hardware and software solutions) designed to take advantage of rapid software integration and security improvements that harden and protect the aircraft and weapon systems. The effort includes Model Based Systems Engineering (MBSE) tools that reduce future costs and schedule of technology insertion.

Capabilities of the F/A-18 weapon system and ancillary equipment require upgrades to accommodate and incorporate new and enhanced weapons and advances in technology to respond effectively to emerging future threats. Future integrated Carrier Air Wing Concept of Operations (CONOPS) demand changes to the base line Block II Super Hornet. Development and Operational Testing for Block III Super Hornet are scheduled to begin in FY22, with incremental updates to mission computer software and fusion system will be required as fleet takes delivery of aircraft. Continuation of F/A-18 Block III development and improvements which will be incorporated in the near term with a combination of forward fit production line incorporation and retrofit modifications to the aircraft already planned as part of the Service Life Modification (SLM) Plan. Additionally, Block III system will support NGAD risk reduction activities.

USMC upgrades to the platform are being developed; to include integration and capability expansion of AESA Radar for F/A-18 A-D, evaluation and development of an Automatic Ground Collision Avoidance System (AUTOGCAS) for all F/A-18 variants, development of increased sensor and Electronic Warfare (EW) capability for F/A-18 A-D, weapons carriage and employment capability expansion, and enhancement of Mission Computer (MC) processing and memory capability. The requirement for Automatic Ground Collision Avoidance System (Auto-GCAS and/or AGCAS) is documented in the F/A-18 C/D Automatic Ground Collision Avoidance System Requirement Letter, dated 20 July 2020: "Controlled Flight into Terrain (CFIT) has been the leading cause of F/A-18 aircraft loss and aircrew fatality. Protecting the lives of aircrew, and preserving Marine Corps' assets are vital to combat readiness. The F/A-18 community has consistently placed AGCAS as a top platform safety priority in Naval Aviation Readiness Groups, Operational Advisory Groups, and Systems Safety Working Groups. AGCAS aligns with Section 127 of the FY19 National Defense Authorization Act, which directs the Secretary of the Navy to mitigate the risk of pilot incapacitation posed by physiological episodes. Historically, USAF F-16 squadrons have experienced similar CFIT mishap rates. To address this, the F-16 community developed a variant of AGCAS, and has demonstrated real world success

in preventing CFIT with at least eight documented "saves." Due to this capability, the risk of CFIT has been effectively mitigated in the USAF F-16 community. Most importantly, AGCAS would have prevented multiple fatal F/A-18 CFIT mishaps based on simulation re-enactments of these events. The USMC F/A-18 community requires AGCAS. The system must be capable of providing an Initial Operating Capability no later than the end of Fiscal Year 2022."

Funding for the Digital Video Map Computer-Upgrade (DVMC-U)/Advanced Crew Station (ACS) Improved Tactical Displays which will enable Panoramic "Big Picture" view of the Battle Space for improved weapons employment and engagement. Including the development of an AUTOGCAS for the F/A-18E/F and EA-18G as a logical extension of the DVMC-Upgrade leveraging completed work from F/A-18A-D using modifications to the TAWS resident in the existing Super Hornet/Growler DVMC in fatal mishap prevention.

Funding for Naval Aviation Physiological Episode (PE) mitigation and root cause investigation in aircraft.

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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: F/A-18 Obsolescence Redesign	0.106	0.108	8.400	0.000	8.400
Articles:	-	-	-	-	-
Description: Develop and test modifications to address obsolescence issues.					
FY 2022 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 weapon system and ancillary equipment obsolescence issues.					
FY 2023 Base Plans: FY23 effort will include FCC Shop-Replaceable Assembly (SRA) level specification document development, SRA hardware design & development initiation, and software development initiation. The F/A-18E, F/A-18F and EA-18G Flight Control Computer (FCC) receives inputs from the aircraft sensors and provides full authority fly-by-wire aircraft control, true airspeed, true angle-of-attack, and relative air density to the Advanced Mission Computer (AMC). F/A-18E, F/A-18F and EA-18G FCCs are interchangeable. The FCC is currently impacted by multiple obsolete components; Processor Module SRA and Mezzanine Card currently have 11 obsolete components. Redesigning mitigates parts obsolescence by leveraging existing industry designs and incorporating more modern hardware and software technologies, incurring significant cost savings to the program by eliminating O&S costs for older systems. The program will include FCC obsolescence mitigation hardware design changes, FCC software update, system and aircraft level testing.					
FY 2023 OCO Plans:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase from FY 2022 to FY 2023 of $8.292 million is for the redesign of obsolete Flight Control Computer (FCC) components, incorporating modern hardware and software technologies.					
Title: USMC Capability Upgrades	28.786	18.195	7.778	0.000	7.778
Articles:	-	-	-	-	-
Description: USMC upgrades to the platform are being developed to include evaluation and development of an Automatic Ground Collision Avoidance System (AUTOGCAS) for all F/A-18 variants, development of increased sensor and EW capability for F/A-18 A-D, weapons carriage and employment capability expansion, and enhancement of MC processing and memory capability. AUTOGCAS will provide the F/A-18 with an auto recovery capability that maneuvers the aircraft away from the ground in case of pilot incapacitation from G-Loss of Consciousness or a Physiological Episode (PE) event. This is a significant aircraft safety improvement that could have prevented multiple fatal F/A-18 mishaps over the past two decades. The requirement for Automatic Ground Collision Avoidance System (Auto-GCAS and/or AGCAS) is documented in the F/A-18 C/D Automatic Ground Collision Avoidance System Requirement Letter, dated 20 July 2020: "Controlled Flight into Terrain (CFIT) has been the leading cause of F/A-18 aircraft loss and aircrew fatality. Protecting the lives of aircrew, and preserving Marine Corps' assets are vital to combat readiness. The F/A-18 community has consistently placed AGCAS as a top platform safety priority in Naval Aviation Readiness Groups, Operational Advisory Groups, and Systems Safety Working Groups. AGCAS aligns with Section 127 of the FY19 National Defense Authorization Act, which directs the Secretary of the Navy to mitigate the risk of pilot incapacitation posed by physiological episodes. Historically, USAF F-16 squadrons have experienced similar CFIT mishap rates. To address this, the F-16 community developed a variant of AGCAS, and has demonstrated real world success in preventing CFIT with at least eight documented "saves." Due to this capability, the risk of CFIT has been effectively mitigated in the USAF F-16 community. Most importantly, AGCAS would have prevented multiple fatal F/A-18 CFIT mishaps based on simulation re-enactments of these events. The USMC F/A-18 community requires AGCAS. The system must be capable of providing an Initial Operating Capability no later than the end of Fiscal Year 2022." ***FY 2022 Plans:*** Complete AUTOGCAS Phase 2 (Flight Control Computer OFP Update) and platform integration and testing. ***FY 2023 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Complete AUTOGCAS integrated flight testing. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease in funds from FY 2022 to FY 2023 of $10.417 million due to the completion of AUTOGCAS Design and Development contract.					
Title: Digital Video Map Computer-Upgrade (DVMC-U)	21.426	35.053	36.726	0.000	36.726
Articles:	-	-	-	-	-
Description: Funds development of Digital Video Map Computer-Upgrade (DVMC-U) (formerly known as Advanced Capability Display Computer - ACDC) to leverage Large Area Displays and Advanced Networking Infrastructure (ANI) in Block III to provide greater situational awareness and incorporate Tactical Decision Aids such as Common Tactical Picture. AUTOGCAS will provide the F/A-18 with an auto recovery capability that maneuvers the aircraft away from the ground in case of pilot incapacitation or Controlled Flight Into Terrain (CFIT) incidents. This is a significant aircraft safety improvement that could have prevented multiple fatal F/A-18 mishaps over the past two decades and aligns with Section 127 of the FY19 National Defense Authorization Act directing the Secretary of the Navy to mitigate the risk posed by CFIT. Modifications to the Digital Mapping Computer (DMC), as well as the Terrain Avoidance Warning System (TAWS) and flight control laws to incorporate AUTOGCAS for the F/A-18A-D Hornet directly port over to incorporate this life-saving capability to the Super Hornet/Growler with reduced program development requirements. Including the development of an AUTOGCAS for the F/A-18E/F and EA-18G leveraging completed work from F/A-18A-D is scheduled to begin in FY22 as a logical extension of the DVMC-Upgrade using modifications to the TAWS resident in the existing DVMC in fatal mishap prevention. ***FY 2022 Plans:*** Continue design and development for the Digital Video Map Computer-Upgrade (DVMC-U) hardware & software that will enable Larger Area Display surface to be fully utilized with advanced graphical tactical displays and intuitive touch screen interface capabilities. ***FY 2023 Base Plans:*** Continue design and development for the Digital Video Map Computer-Upgrade (DVMC-U) hardware & software that will enable Larger Area Display surface to be fully utilized with advanced graphical tactical displays and intuitive touch screen interface capabilities. During this time, the hardware design will be more mature so					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
we expect the software development to ramp up. The software development will be for the internal DVMC operational program, aircraft integration via the mission computer, and enhanced displays. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase in funds from FY 2022 to FY 2023 of $1.673 million due to the ramp up of the DVMC-U Hardware Design and Development contracts.					
Title: Multi-System Integration (MSI) / Common Tactical Picture (CTP)	63.684	83.884	78.982	0.000	78.982
Articles:	-	-	-	-	-
Description: Multi-System Integration (MSI), Multi-Ship Ranging (MSR), and IRIS algorithm continue to evolve and progress from baseline H16 SCS that continues incremental approach and improvements designed to optimize the system. Concurrently, H16 Block III Common Tactical Picture (CTP) continues with development and optimization of merge data fusion and sensors from single aircraft to multiple aircraft. Advanced Tactical Data Fusion represents an incremental approach to accelerating kill chains through multi aircraft sensor fusion, improved algorithms, automation, and aircrew decision aids. System Configuration Set (SCS) methodology of bundling capabilities and modifications into a single fleet mission computer Operational Flight Program (OFP) continue, but at an increased delivery rate to meet rapid speed to fleet demands. This is being accomplished with an incremental modernization of the F/A-18 & EA-18G software lifecycle that includes Scaled Agile Framework and Continuous Development & Integration (CCD&I) methodology. ***FY 2022 Plans:*** Flight Plan continued improvements to MSI, MSR/IRIS, and development of Advanced Tactical Data Fusion that follows initial Block III Common Tactical Picture (CTP) capability. Modeling and simulation, engineering studies, and comprehensive evaluation and/or development of available tactical fusion systems designed to move from current level one category, to level four fusion for the F/A-18 & EA-18G. This includes the identification, evaluation and engineering analysis of the advanced tactical data fusion for F/A-18 & EA-18G, as well as providing NGAD risk reduction. This effort includes improvements to mission computer, JMPS UPC, and weapon system software SCS updates associated with each incremental Block (H build) and to include ongoing Software Modernization, Cyber protections, and Speed to Fleet requirements. Advances in Super Hornet Air and Surface Warfare will continue with ongoing integration of weapons and sensors into advanced fusion, Display Improvements to enhance air-to-air and air-to-surface situational awareness and aircrew decision superiority, continued development of third party software applications and protocols for rapid fleet capability delivery,					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
and Counter Electronic Attack enhancements to improve survivability and lethality. Increased engineering efforts for integration of active and passive kill chain capabilities and sensors associated with Flight Plan NIFC and OASuW FNC Target Identification transition efforts continues. Airwing interoperability requirements, development of follow on advanced tactical data fusion that enables aircraft division level sensor fusion and resource management, and developmental test efforts also increase at test activities, including ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, Live Virtual Constructive developmental efforts, and Fusion research and integration testing. Funding includes H16 Operational Testing.					
FY 2023 Base Plans: Flight Plan continued improvements to MSI, MSR/IRIS, and development of Advanced Tactical Data Fusion that follows initial Block III Common Tactical Picture (CTP) capability. Modeling and simulation, engineering studies, and comprehensive evaluation and/or development of available tactical fusion systems designed to move from current level one category, to level four fusion for the F/A-18 & EA-18G. This includes the identification, evaluation and engineering analysis of the advanced tactical data fusion for F/A-18 & EA-18G, as well as providing NGAD risk reduction. This effort includes improvements to mission computer, JMPS UPC, and weapon system software SCS updates associated with each incremental Block (H build) and to include ongoing Software Modernization, Cyber protections, and Speed to Fleet requirements. Advances in Super Hornet Air and Surface Warfare will continue with ongoing integration of weapons and sensors into advanced fusion, Display Improvements to enhance air-to-air and air-to-surface situational awareness and aircrew decision superiority, continued development of third party software applications and protocols for rapid fleet capability delivery, and Counter Electronic Attack enhancements to improve survivability and lethality. Increased engineering efforts for integration of active and passive kill chain capabilities and sensors associated with Flight Plan NIFC and OASuW FNC Target Identification transition efforts continues. Airwing interoperability requirements, development of follow on advanced tactical data fusion that enables aircraft division level sensor fusion and resource management, and developmental test efforts also increase at test activities, including ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, Live Virtual Constructive developmental efforts, and Fusion research and integration testing. Funding includes H18 Operational Testing.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Decrease in funds from FY 2022 to FY 2023 of $4.902 million due to completion of H16 operational testing. Department added funding of $0.470 million to fund Higher Critical Component Coatings.					
Title: F/A-18 E/F/G Network Cyber Defense ***Articles:*** ***Description:*** The F/A-18E/F and EA-18G currently have limited cyber defense capabilities. This funding provides for the development of a hardware and software based solution into the Distributed Target Processor - Network (DTP-N) in order for the network cyber defense to provide the F/A-18 E/F and EA-18G with a capability to detect an intrusion and prevent avionics terminals on the data from being corrupted by malicious software and identify when the software is not operating normally. The capability determines intrusion via traffic analysis. Air crew are alerted to malicious behavior with forensic data for maintenance for post flight repair. The capability quarantines the intrusion for safe failure across data networks and aircraft. This capability provides positive reliable means to ensure mission aircraft systems integrity during a cyber-attack and thus prevents cyber events from reducing aircraft availability. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** For FY2023 Network Cyber Defense effort will mature the Intrusion Detection Software (IDS) to Technology Readiness Level (TRL) 6. In FY2023, begin the contract for the IDS TRL 6 as well as the integration into the Mission Computer. Begin NAWCAD PAX River software integration efforts on unique Cyber test tool development to accelerate project to Fleet introduction. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY2023 funding increases of $11.200 million for the development of an F/A-18 E/F/G Network Cyber Defense capability.	0.000 -	0.000 -	11.200 -	0.000 -	11.200 -
Title: Flight Plan Engineering / System Configuration Set Development and Integration ***Articles:*** ***Description:*** Continue F/A-18 E/F and EA-18G "Flight Plan" spiral capability development, which is critical to the baseline of the Super Hornet next generation mission system capability. Funding will support the development, test, and integration efforts required to maintain tactical relevance in support of the Naval Aviation Plan 2030.	9.087 -	8.373 -	2.724 -	0.000 -	2.724 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Plans: Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy, Software Modernization and Cyber, Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhanced F/A-18 Cooperative Engagement Capability. ***FY 2023 Base Plans:*** Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy, Software Modernization and Cyber, Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhanced F/A-18 Cooperative Engagement Capability. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease in funds from FY 2022 to FY 2023 of $5.649 million due to reduction in support needed for flight plan engineering with NAWCWD China Lake.					
Title: F/A-18 Beyond Line Of Sight (BLOS) Comms	0.000	0.000	31.900	0.000	31.900
Articles:	-	-	-	-	-
Description: This capability provides joint, multi-domain connectivity for the distributed battlespace Beyond Line Of Sight (BLOS) tactical communication and puts a common tactical picture into the hands of the pilot. The capability also provides a resilient, real-time gateway between the 4th and 5th generation tactical aircraft with datalinks at the tactical edge with assured C2 and targeting from national and other off board sensors. The data is provided through multiple data paths and supports Long Range Fires in critical environments. Beyond Line Of Site (BLOS) also provides tactical communications for joint, multi-domain connectivity in support of distributed battlespace. This incremental approach allows for rapid, Speed-to-the-Fleet capability insertion as technology and solutions are developed. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Provide systems development BLOS/PACFLT upgrades for Increment 2. Solutions include new Receiver/ Transmitters (R/T), antennas and other resilient communications enablers. Provides aircraft SCS integration efforts to support Increment 2 testing. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase in FY2023 funding of $31.900 million provided for development of Beyond Line Of Sight (BLOS) Comm efforts to support tactical communications for joint, multi domain connectivity in support of distributed battlespace.					
Accomplishments/Planned Programs Subtotals	123.089	145.613	177.710	0.000	177.710

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0525: *F-18 SERIES*	367.890	324.399	480.663	-	480.663	668.229	945.654	1,036.635	1,195.716	Continuing	Continuing
• APN/0145: *FA-18E/F*	1,778.554	977.161	90.865	-	90.865	84.386	2.748	33.579	0.000	0.000	53,491.263
• APN/0505: *F-18E/F and EA-18G Modernization and Sustainment*	399.348	445.721	572.681	-	572.681	629.256	518.199	522.603	542.178	5,769.676	9,399.662

Remarks

D. Acquisition Strategy

The F/A-18 Improvement program consists of extensive spiral development efforts mapped out in the capability-based approach F/A-18 E/F "Flight Plan". These efforts are critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of the Naval Aviation Plan 2030. The major programs within the F/A-18 Improvement project are based on multiple Weapon System Capabilities including: Net Centric Operations/Battle Space Management, Sensor Integration, Air to Ground and Maritime Attack, and Air to Air Attack. The major efforts included in this project are: Dual Mode Weapons integration; Nirvana (next increment of Common Tactical Picture (CTP)); continued advanced development and F/A-18E/F Flight Plan engineering and analysis; continued enhanced software capabilities development; and engineering support to perform technical evaluations, modeling and simulations, and investigative flight testing. Nirvana capability is being developed under the NAWCWD System Configuration Set (SCS) Cost Plus Fixed Fee contract. AUTOGCAS will provide the F/A-18 with an auto recovery capability that maneuvers the aircraft away from the ground through automatic throttle control, flying to a pre-defined waypoint and circling until pilot recovery in case of pilot incapacitation or Controlled Flight Into Terrain (CFIT) incidents. Including the development of an AUTOGCAS for the F/A-18E/F and EA-18G leveraging completed work from F/A-18A-D is scheduled to begin in FY22 as a logical extension of the DVMC-Upgrade (formerly known as Advanced Capability Display Computer - ACDC) using modifications to the TAWS resident in the existing DVMC in fatal mishap prevention.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 1662 / *F/A-18 Improvement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP Develop Sensor Integration	C/IDIQ	Boeing : St Louis, MO	26.085	15.031	Feb 2021	27.119	Feb 2022	24.663	Feb 2023	-		24.663	346.668	439.566	439.567
MSI/CTP Develop Sensor Integration	WR	NAWCWD : China Lake, CA	52.260	7.381	Nov 2020	12.660	Nov 2021	12.066	Nov 2022	-		12.066	183.357	267.724	-
MSI/CTP Development Support	WR	NSMA : Arlington, VA	3.000	2.636	Dec 2020	2.683	Dec 2021	2.732	Dec 2022	-		2.732	14.985	26.036	-
MSI/CTP Strike Accelerator ASUW ICP3	WR	NAWCWD : China Lake, CA	17.937	19.914	Nov 2020	20.758	Nov 2021	18.563	Nov 2022	-		18.563	15.118	92.290	-
MSI/CTP Development Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.470	Nov 2022	-		0.470	0.500	0.970	-
USMC Upgrades - Software development & Integration	C/CPIF	Boeing : St Louis, MO	0.637	14.822	Dec 2021	5.681	Jan 2022	1.000	Jan 2023	-		1.000	0.000	22.140	22.140
USMC Upgrades - AUTOGCAS - Software development & Risk Reduction	WR	NAWCWD : China Lake, CA	4.547	4.410	Nov 2020	4.266	Nov 2021	2.000	Nov 2022	-		2.000	0.000	15.223	-
USMC Upgrades - AUTOGCAS	C/CPIF	Boeing : St Louis, MO	1.015	3.101	Apr 2022	3.163	Apr 2022	0.000		-		0.000	23.899	31.178	32.178
USMC Upgrades - AUTOGCAS - ATAWS software development	Various	PMA 209 Various : Various	1.600	1.230	Nov 2020	0.000		0.000		-		0.000	0.000	2.830	-
USMC Upgrades - TBD	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	32.480	32.480	-
DVMC-U (ACS) Improved Tactical Displays Development	C/CPIF	Boeing : St. Louis, MO	0.000	14.656	Feb 2021	30.045	Feb 2022	27.586	Feb 2023	-		27.586	117.820	190.107	190.107
DVMC-U Advance Capability Mission Computer (ACMC)	WR	NSMA : Arlington, VA	0.000	1.100	Dec 2020	1.000	Dec 2021	0.000		-		0.000	0.000	2.100	-
DVMC-U Software Development	WR	NAWCWD : China Lake, CA	0.000	4.730	Nov 2020	3.050	Nov 2021	4.731	Nov 2022	-		4.731	87.498	100.009	-
Obsolescense Redesign (FCC)	C/CPFF	Boeing : St. Louis, MO	0.000	0.000		0.000		7.919	Jul 2023	-		7.919	45.441	53.360	53.360

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network Cyber Defense	C/IDIQ	Boeing : St. Louis, MO	0.000	0.000		0.000		5.215	Jan 2023	-		5.215	15.035	20.250	20.250
Network Cyber Defense	C/IDIQ	Raytheon : El Segundo, CA	0.000	0.000		0.000		4.000	Jan 2023	-		4.000	9.500	13.500	13.500
BLOS/PACFLT Development (Antenna)	C/CPFF	TBD : TBD	0.000	0.000		0.000		4.238	Jan 2023	-		4.238	5.690	9.928	9.928
BLOS/PACFLT Development	C/FFP	Fuse : San Diego, CA	0.000	0.000		0.000		3.200	Jan 2023	-		3.200	4.660	7.860	7.860
BLOS/PACFLT Development (R/T)	C/CPFF	TBD : TBD	0.000	0.000		0.000		7.200	Jan 2023	-		7.200	8.860	16.060	16.060
BLOS/PACFLT Development (Minotaur)	C/FFP	PMAT : Norfolk, VA	0.000	0.000		0.000		1.200	Jan 2023	-		1.200	1.560	2.760	2.760
BLOS/PACFLT Development	C/CPFF	Boeing : St. Louis, MO	0.000	0.000		0.000		3.177	Jan 2023	-		3.177	3.850	7.027	7.027
Aviation LVC Live A/C Integration Phase 1 & TCTS II Acceleration	Various	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	31.128	31.128	-
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various : Various	887.634	0.000		0.000		0.000		-		0.000	0.000	887.634	-
		Subtotal	994.715	89.011		110.425		129.960		-		129.960	948.049	2,272.160	N/A

Remarks

Increase from FY 2022 to FY 2023 for primary hardware development of Beyond Line of Sight (BLOS) and Network Cyber Defense. Revised award date for USMC Upgrades - Software development & Integration and USMC Upgrades - AUTOGCAS, to Boeing, from 2021-01 to 2021-12 due to change in acquisition strategy.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP Development Support - 31C SCS	WR	NSMA : Arlington, VA	12.313	1.737	Mar 2021	1.768	Mar 2022	1.800	Mar 2023	-		1.800	17.598	35.216	-
MSI/CTP Government Developmental Engineering Support	WR	Pt. Mugu : Pt. Mugu, CA	0.852	0.435	Nov 2020	0.443	Nov 2021	0.452	Nov 2022	-		0.452	4.109	6.291	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP Gov't Engineering Support	WR	NAWCAD : Pax River, MD	8.833	3.731	Nov 2020	5.819	Nov 2021	5.501	Nov 2022	-		5.501	67.912	91.796	-
MSI/CTP Gov't Engineering Support	WR	NAWCWD : China Lake	14.588	2.479	Nov 2020	4.029	Nov 2021	2.480	Nov 2022	-		2.480	24.507	48.083	-
USMC Capability Upgrades /AUTOGCAS Gov't Engineering Support	C/BA	NAWCWD : China Lake	3.119	1.530	Nov 2020	1.362	Nov 2021	0.670	Nov 2022	-		0.670	0.605	7.286	-
DVMC-U Gov't Engineering Support	WR	NAWCAD : Pax River, MD	0.000	0.524	Nov 2020	0.534	Nov 2021	0.545	Nov 2022	-		0.545	2.302	3.905	-
MSI/CTP Gov't Engineering Support Strike Accelerator	WR	NAWCWD : China Lake	0.441	7.511	Nov 2020	7.135	Nov 2021	2.333	Nov 2022	-		2.333	2.462	19.882	-
Obsolescence Redesign	Various	Various : Various	2.000	0.106	Nov 2020	0.108	Nov 2021	0.481	Nov 2022	-		0.481	1.925	4.620	-
Network Cyber Defense Gov't Engineering Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.250	Nov 2022	-		0.250	1.200	1.450	-
BLOS/PACFLT Engineering/Logistics Support	WR	NAWCWD : China Lake	0.000	0.000		0.000		8.500	Nov 2022	-		8.500	10.600	19.100	-
BLOS/PACFLT Egineering Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		1.000	Nov 2022	-		1.000	1.400	2.400	-
BLOS/PACFLT Engineering Support	WR	ONR : Arlington, VA	0.000	0.000		0.000		1.000	Oct 2022	-		1.000	1.600	2.600	-
Aviation LVC Live A/C Integration Phase 1 & TCTS II Acceleration	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	3.700	3.700	-
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	3,131.394	0.000		0.000		0.000		-		0.000	0.000	3,131.394	-
		Subtotal	3,173.540	18.053		21.198		25.012		-		25.012	139.920	3,377.723	N/A

Remarks

Increase from FY 2022 to FY 2023 for support efforts related to Beyond Line of Sight (BLOS) and Network Cyber Defense.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP - T&E	WR	OPTEVFOR : Norfolk, VA	34.119	6.081	Dec 2020	6.300	Dec 2021	7.727	Dec 2022	-		7.727	69.639	123.866	-
*MSI/CTP Multi-System Integration T&E	WR	NAWCAD : Pax River, MD	2.042	1.387	Nov 2020	0.000		1.415	Nov 2022	-		1.415	4.476	9.320	-
MSI/CTP Developmental T&E	WR	NAWCAD : Pax River, MD	1.746	0.919	Nov 2020	0.000		0.937	Nov 2022	-		0.937	37.966	41.568	-
USMC Developmental T&E	WR	NAWCWD : China Lake, CA	1.396	2.300	Nov 2020	2.564	Nov 2021	2.247	Nov 2022	-		2.247	22.355	30.862	-
DVMC-U - Developmental T&E	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.284	Nov 2022	-		0.284	20.934	21.218	-
Flight Plan Engineering/ System Configuration Set Development & Integration	WR	NAWCAD : Pax River, MD	3.094	0.730	Nov 2020	0.383	Nov 2021	0.391	Nov 2022	-		0.391	3.421	8.019	-
Obsolescense Redesign (FCC)	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	3.813	3.813	-
Network Cyber Defense Integration T&E	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.250	Nov 2022	-		0.250	3.500	3.750	-
Network Cyber Defense Integration T&E	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		1.750	Nov 2022	-		1.750	23.100	24.850	-
BLOS/PACFLT T&E	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		2.300	Nov 2022	-		2.300	2.420	4.720	-
Aviation LVC Live A/C Integration Phase 1 & TCTS II Acceleration	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	4.050	4.050	-
Prior Year T&E costs no longer funded in FYDP	Various	Various : Various	211.163	0.000		0.000		0.000		-		0.000	0.000	211.163	-
		Subtotal	253.560	11.417		9.247		17.301		-		17.301	195.674	487.199	N/A

Remarks

Increase from FY 2022 to FY 2023 for T&E efforts related to Beyond Line of Sight (BLOS) and Network Cyber Defense, as well as an increase in H18 MSI/CTP test events.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP- Program Management Support	WR	NAWCAD : Pax River, MD	10.191	0.795	Nov 2020	0.799	Nov 2021	0.815	Nov 2022	-		0.815	8.109	20.709	-
MSI/CTP- CSS Program Management Support	C/CPFF	Wyle Lab : Pax River, MD	29.616	0.981	Apr 2021	0.000		0.000		-		0.000	0.000	30.597	30.597
MSI/CTP PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.989	Apr 2022	1.009	Apr 2023	-		1.009	10.037	12.035	12.035
MSI/CTP Travel	Various	NAVAIR : Pax River, MD	6.520	0.177	Oct 2020	0.516	Oct 2021	0.520	Nov 2022	-		0.520	6.817	14.550	-
USMC Capability Upgrades Program Management Support	WR	NAWCAD : Pax River, MD	1.641	0.701	Nov 2020	0.704	Nov 2021	0.718	Nov 2022	-		0.718	6.287	10.051	-
USMC Capability Upgrades Seaport CSS	C/CPFF	Wyle Lab : Pax River, MD	0.829	0.692	Apr 2021	0.000		0.000		-		0.000	0.000	1.521	1.521
USMC PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.441	0.000		0.455	Apr 2022	0.720	Apr 2023	-		0.720	6.303	7.919	7.919
DVMC-U Program Management Support	WR	NAWCAD : Pax River, MD	0.000	0.191	Nov 2020	0.194	Nov 2021	0.198	Nov 2022	-		0.198	5.688	6.271	-
DVMC-U Seaport CSS	C/CPFF	Wyle Lab : Pax River, MD	0.000	0.225	Apr 2021	0.000		0.000		-		0.000	0.000	0.225	0.225
DVMC-U PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.230	Apr 2022	0.234	Apr 2023	-		0.234	5.884	6.348	6.348
Flight Plan Engineering/ SCS Program Mgmt Support	WR	NAWCAD : Pax River, MD	46.381	0.425	Nov 2020	0.426	Nov 2021	0.435	Nov 2022	-		0.435	0.000	47.667	-
Flight Plan Engineering/ SCS Seaport CSS	C/CPFF	Wyle Lab : Pax River, MD	1.175	0.421	Apr 2021	0.000		0.000		-		0.000	0.000	1.596	1.596
Flight Plan/SCS PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.417	0.000		0.430	Apr 2022	0.438	Apr 2023	-		0.438	0.000	1.285	1.285
Network Cyber Defense Program Management	C/CPFF	MILCORP : Pax River, MD	0.000	0.000		0.000		0.250	Jan 2023	-		0.250	1.000	1.250	1.250
BLOS/PACFLT Mgmt Support	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.000		0.100	Apr 2023	-		0.100	0.200	0.300	0.300

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aviation LVC Live A/C Integration Phase 1 & TCTS II Accleration	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	2.200	2.200	-
Prior Year Mgmt cost no longer funded in FYDP	Various	Various : Various	118.516	0.000		0.000		0.000		-		0.000	0.000	118.516	-
		Subtotal	215.727	4.608		4.743		5.437		-		5.437	52.525	283.040	N/A

Remarks

Increase from FY 2022 to FY 2023 for management efforts related to Beyond Line of Sight (BLOS) and Network Cyber Defense

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4,637.542	123.089		145.613		177.710		-		177.710	1,336.168	6,420.122	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

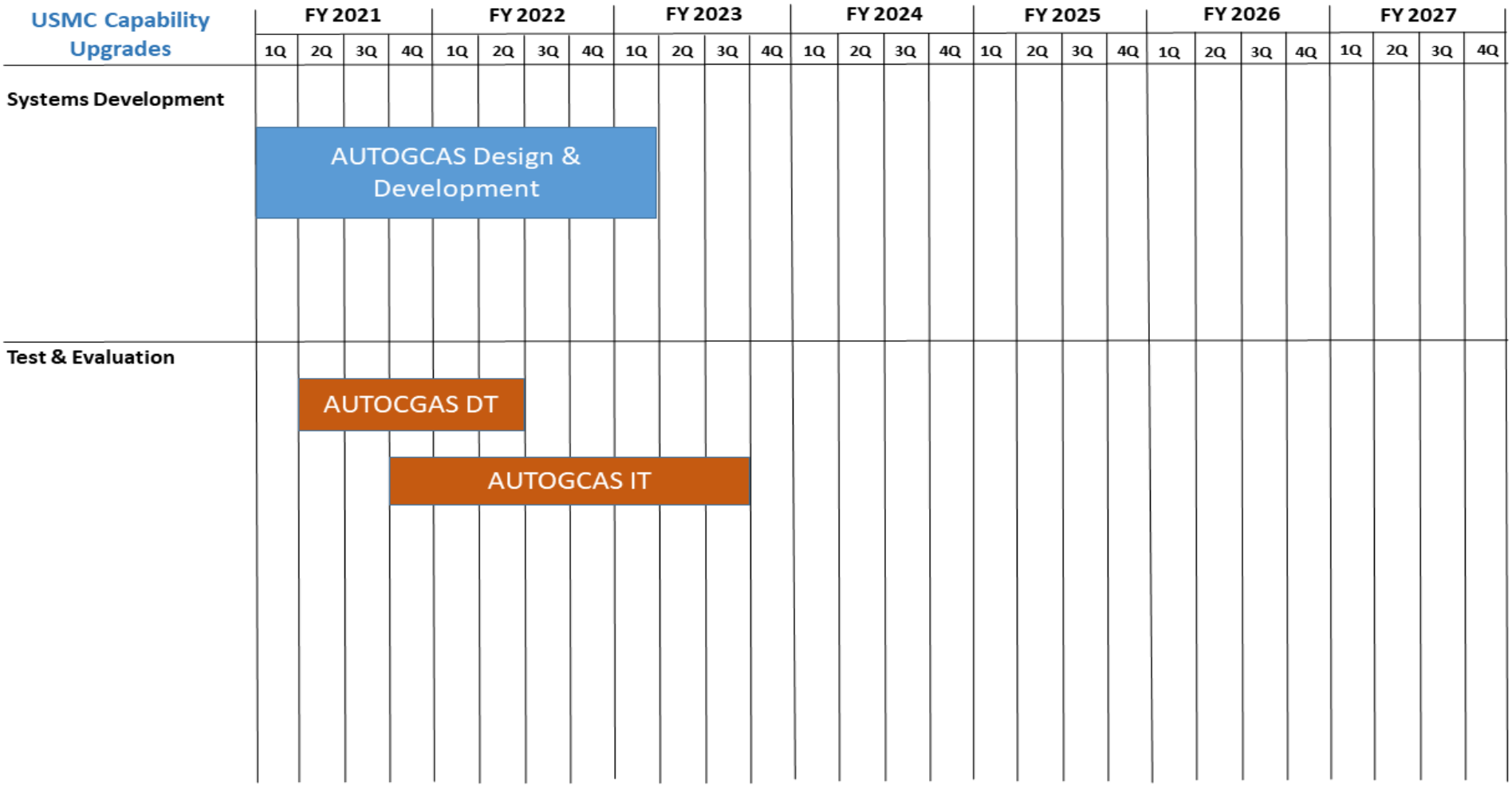

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

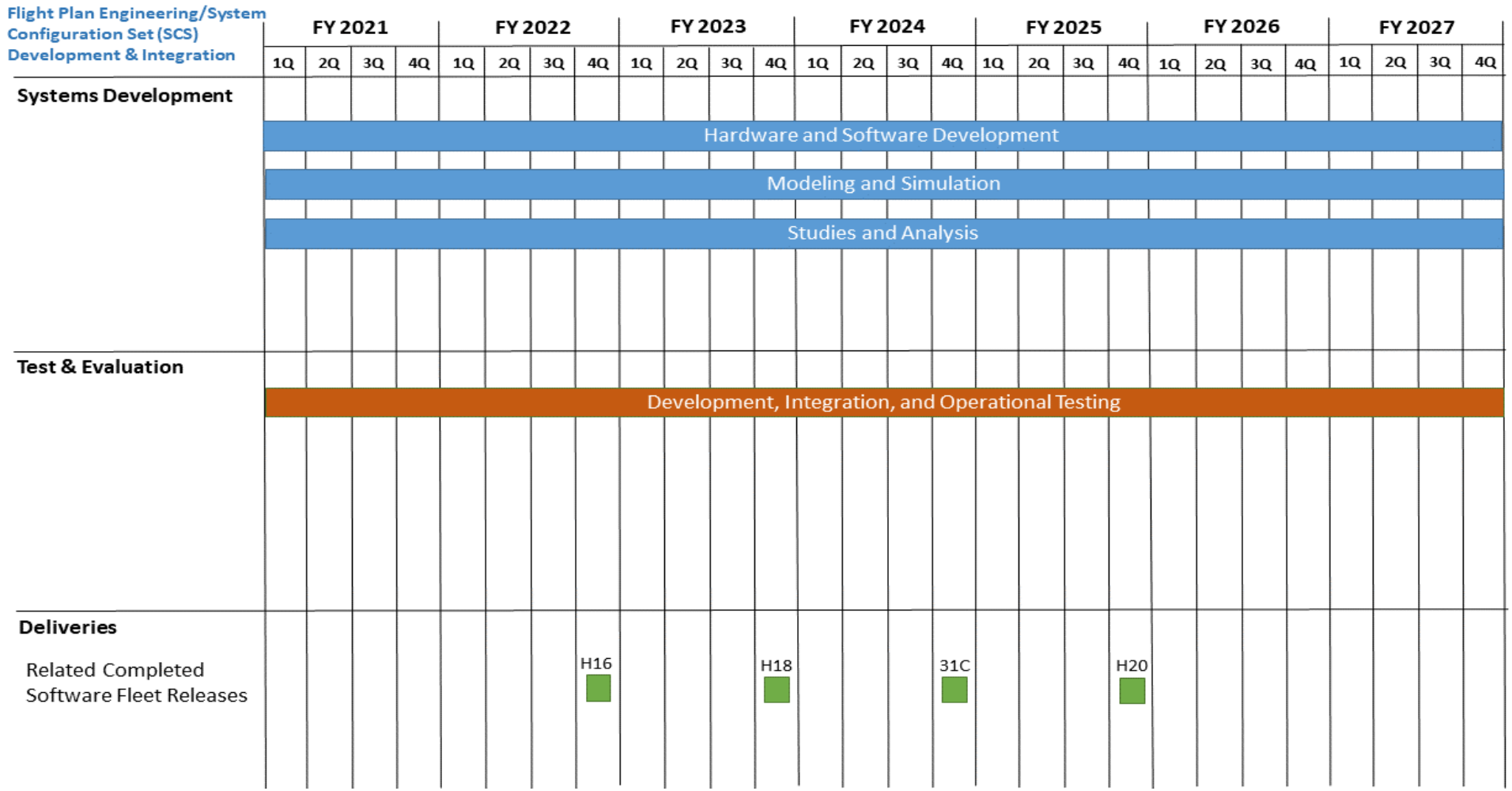

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

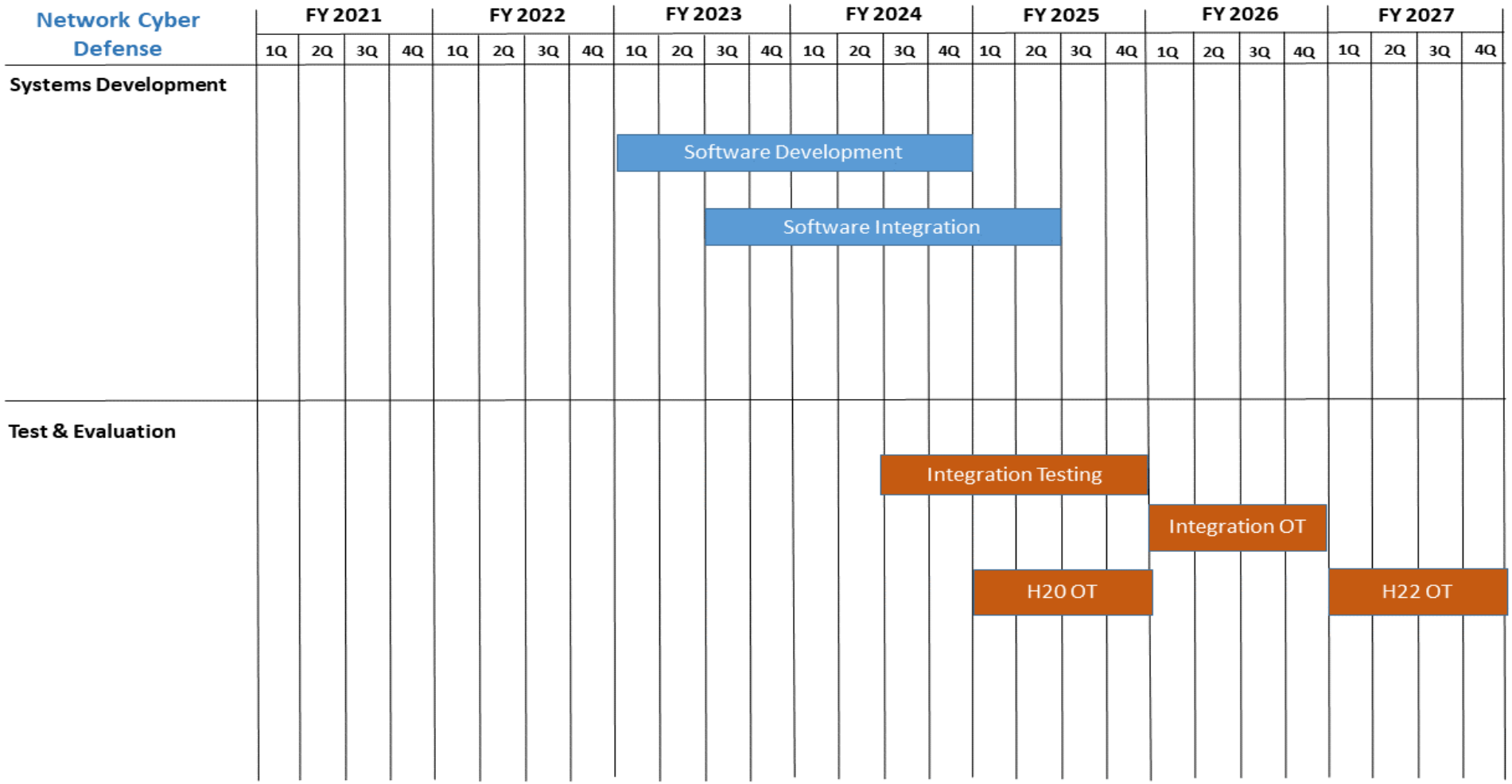

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

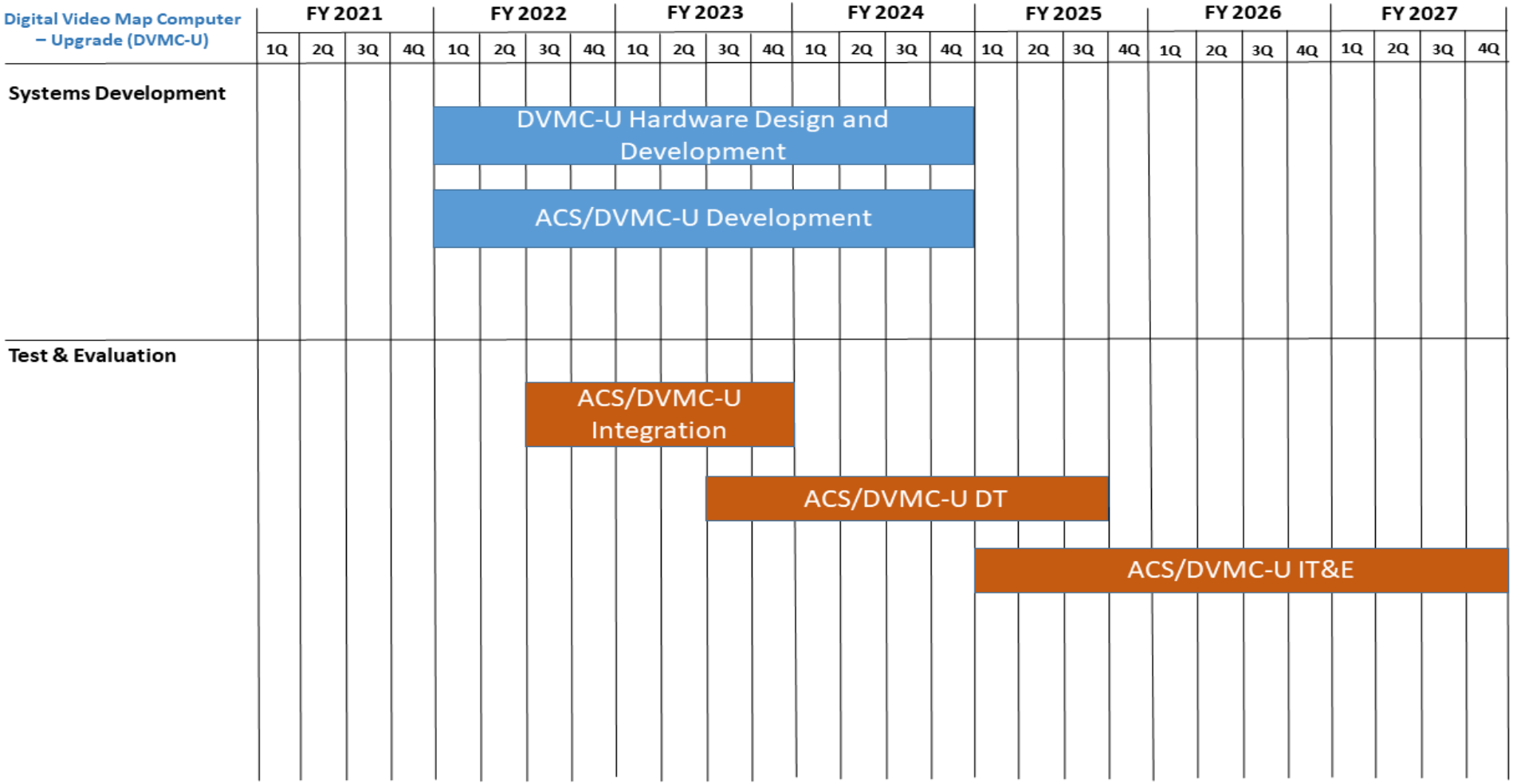

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

Multi-System Integration (MSI)/ Common Tactical Picture (CTP)

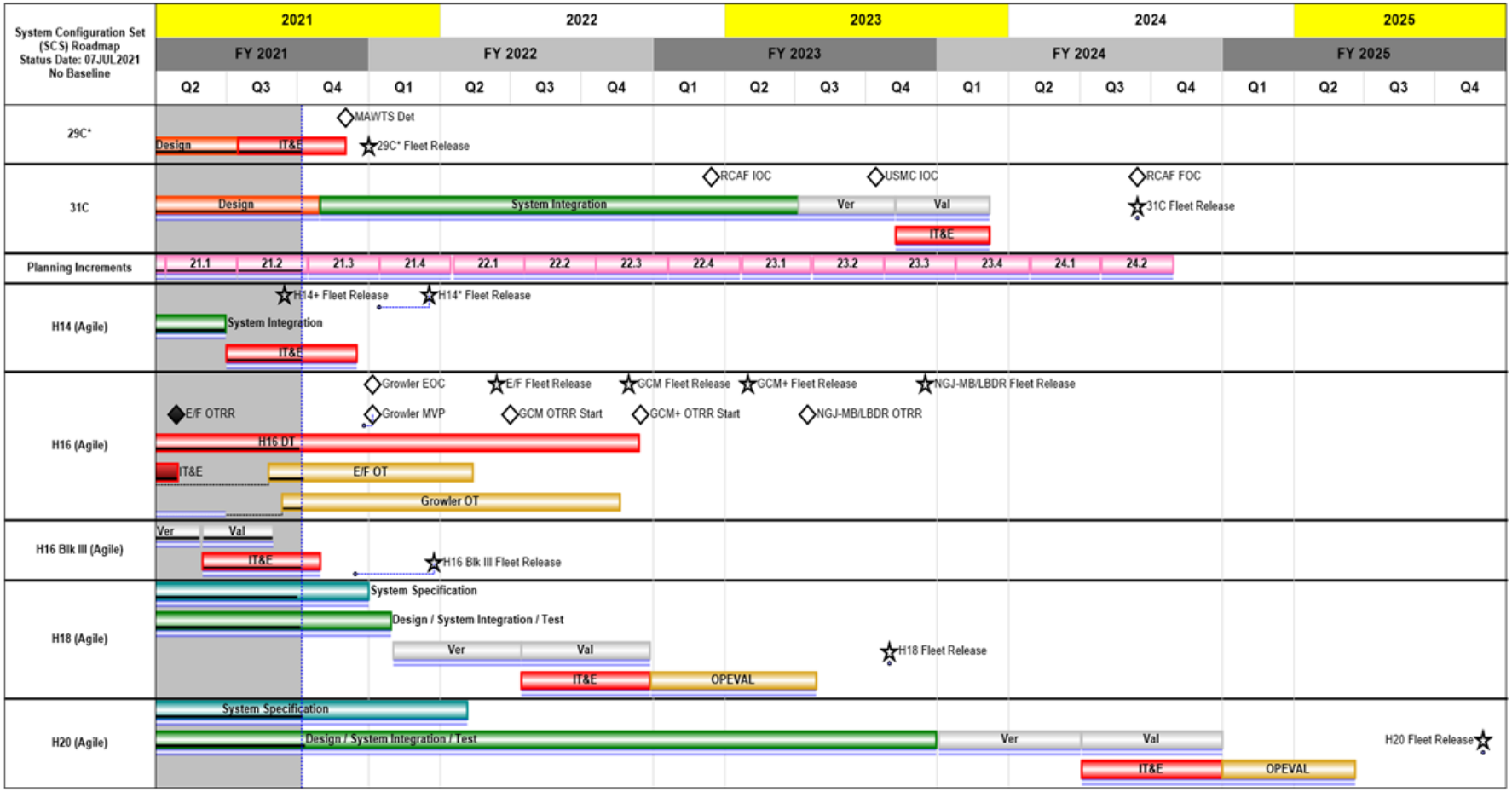

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

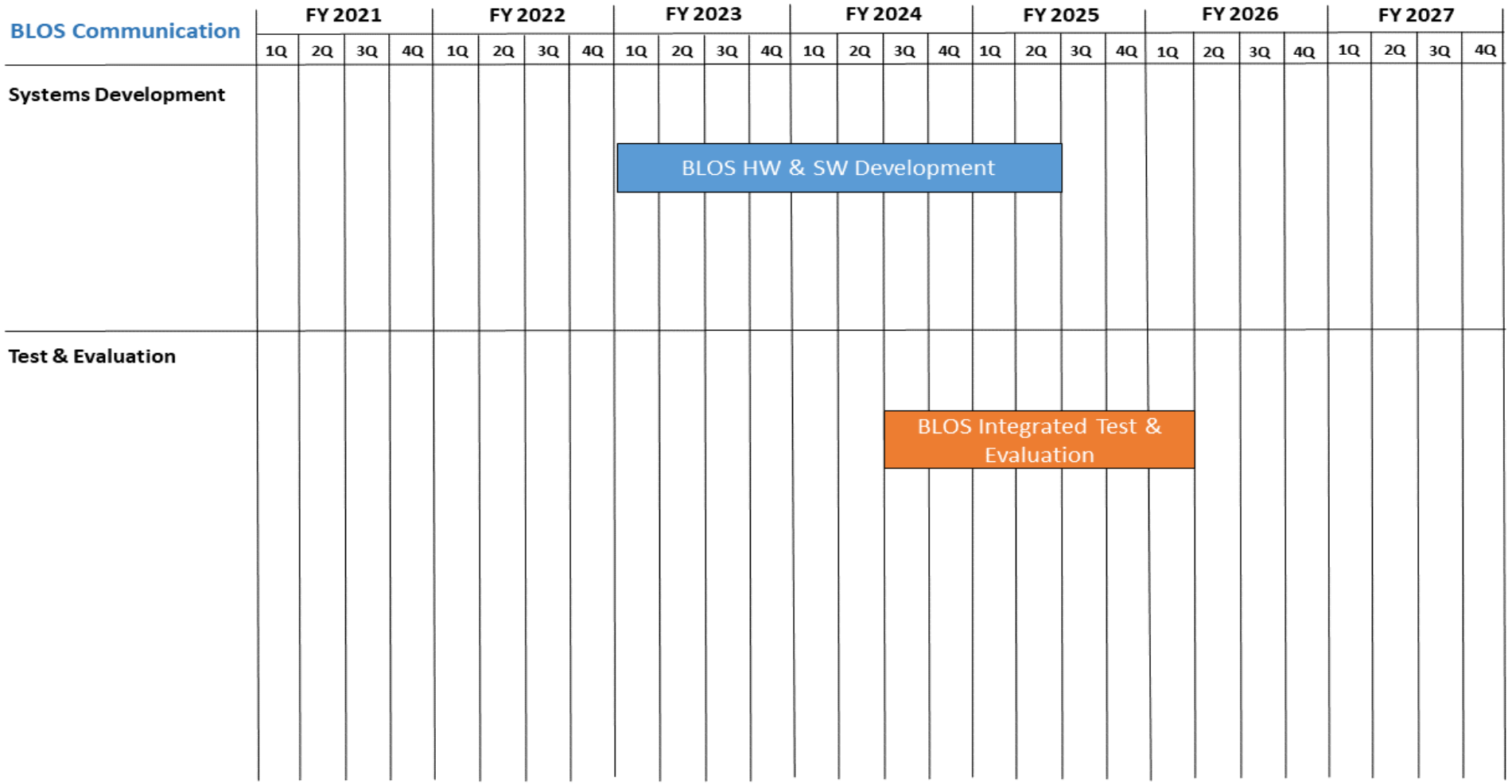

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

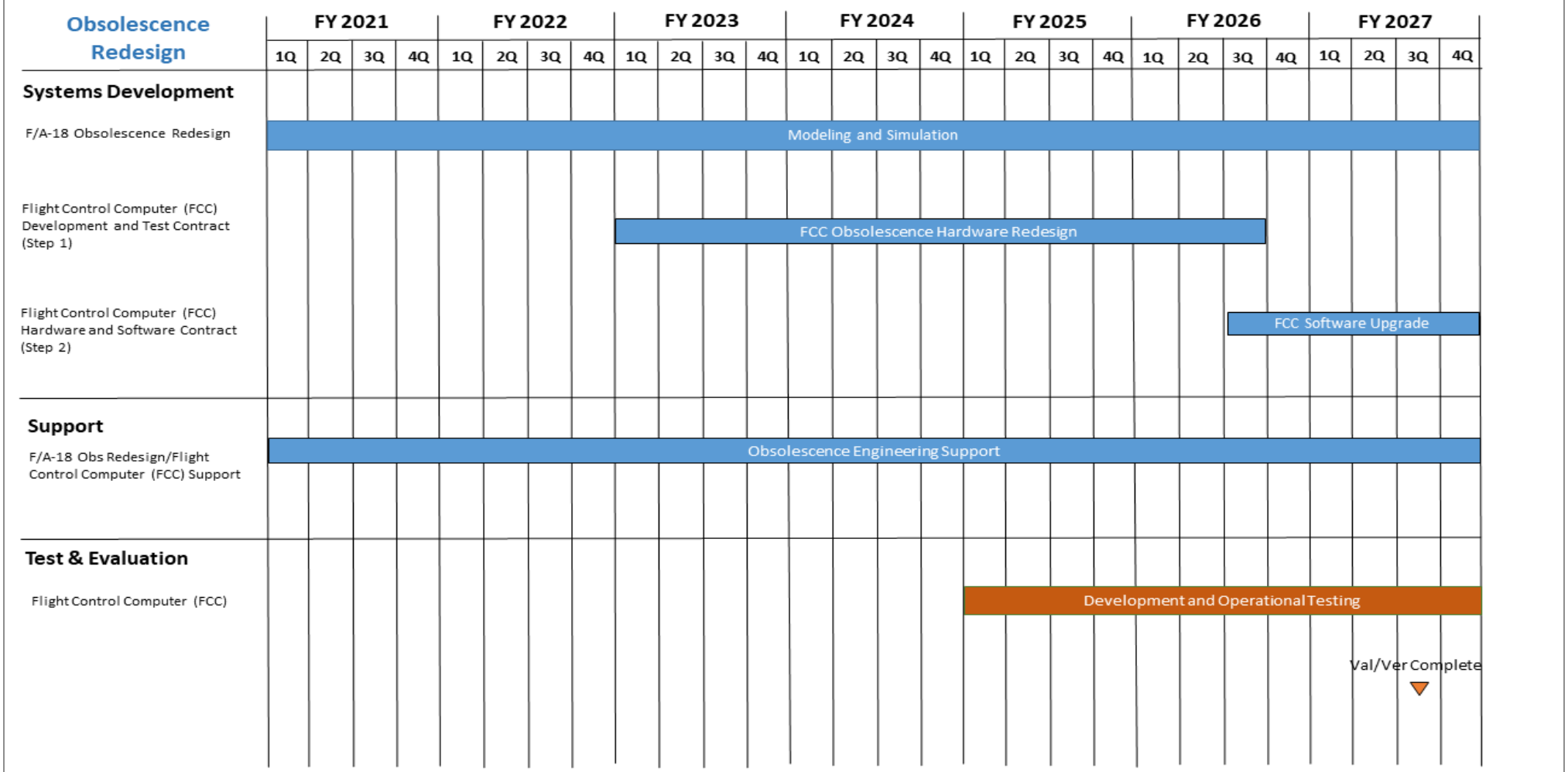

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Multi-System Integration / Common Tactical Picture				
Systems Development & Testing: 29C* Development & Testing	1	2021	4	2021
Systems Development & Testing: 31C Development & Testing	1	2021	1	2024
Systems Development & Testing: H14 Agile Development & Testing	1	2021	4	2021
Systems Development & Testing: H16 Agile Development & Testing	1	2021	4	2022
Systems Development & Testing: H16 (Blk III) Agile Development & Testing	1	2021	4	2021
Systems Development & Testing: H18 Agile Development & Testing	1	2021	3	2023
Systems Development & Testing: H20 Agile Development & Testing	1	2021	2	2025
Flight Plan Engineering				
System Development: Hardware and Software Development	1	2021	4	2027
System Development: Modeling and Simulation	1	2021	4	2027
System Development: Studies and Analysis	1	2021	4	2027
Test and Evaluation: Developmental, Integration and Operational Testing	1	2021	4	2027
Deliveries: Software Fleet Release: H16 Fleet Release	4	2022	4	2022
Deliveries: Software Fleet Release: H18 Fleet Release	4	2023	4	2023
Deliveries: Software Fleet Release: 31C Fleet Release	4	2024	4	2024
Deliveries: Software Fleet Release: H20 Fleet Release	4	2025	4	2025
Obsolescence Redesign				
System Development: F/A-18 Weapon System & Ancillary Equipment: Obsolescence Redesign Development & Testing	1	2021	1	2022
System Development: Flight Control Computer (FCC): FCC Development and Test Contract (Step 1)	4	2023	3	2026
System Development: Flight Control Computer (FCC): FCC Hardware and Software Contract (Step 2)	1	2027	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Support: F/A-18 Obs Redesign/Flight Control Computer Support	1	2021	4	2027
Test and Evaluation: Flight Control Computer (FCC) - Development and Operational Testing	1	2025	3	2027
Test and Evaluation: FCC Val/Ver Complete	3	2027	3	2027
USMC Capability Upgrade				
AUTOGCAS Design and Development	1	2021	1	2023
AUTOGCAS DT	2	2021	2	2022
AUTOGCAS IT	4	2021	3	2023
Digital Video Map Computer - Upgrade				
System Development: DVMC-U Hardware Design and Development	1	2022	4	2024
System Development: ACS Situational Awareness w/ DVMC-U Development	1	2022	4	2024
Test and Evaluation: ACS Situational Awareness w/ DVMC-U SCS Integration	3	2022	4	2023
Test and Evaluation: ACS Situational Awareness w/ DVMC-U DT	3	2023	3	2025
Test and Evaluation: ACS Situational Awareness w/ DVMC-U IT&E	1	2025	4	2027
Network Cyber Defense				
Systems Development: Software Development	1	2023	4	2024
Systems Development: Software Integration	3	2023	2	2025
Test & Evaluation: Integration Testing	3	2024	4	2025
Test & Evaluation: H20 OT	1	2025	4	2025
Test & Evaluation: H22 OT	1	2027	4	2027
Test & Evaluation: Integration Operational Test	1	2026	4	2026
BLOS Communication				
Systems Development: BLOS Hardware & Software Development	1	2023	2	2025
Test & Evaluation: BLOS Integrated Test & Evaluation	3	2024	1	2026

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2065: *F/A-18 Radar Upgrade*	760.453	8.048	7.678	11.246	-	11.246	10.792	9.536	10.885	10.938	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

F/A-18 Radio Detection and Ranging (RADAR) Upgrade: The F/A-18 RADAR Upgrade, Active Electronically Scanned Array (AESA) development program, which began in FY 1999, is the last of three pre-planned upgrades to the F/A-18 EF/EA-18G RADAR. The AESA system corrects operational test deficiencies noted in the AN/APG-73. It provides multi-target tracking, Synthetic Aperture RADAR (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides greater lethality than previous F/A-18 RADARs by allowing full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons and it significantly increases detection and tracking ranges. The AESA system provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy RADAR. The AN/APG-73 will be upgraded to AN/APG-79. This combat-proven AESA radar system substantially increases the power of the F/A-18E/F EA-18G from the front-end array to the back-end processor and operational software. This budget continues spiral capability development of AESA with increased efforts to address Phase II Operational Requirements Document requirements such as Counter-Electronic Attack (CEA) against multiple Radio Frequency Emitters, AESA Multi-Jammer Electronic Protection, Precision TLE Improvement, Monopulse and 5th/6th Channel development, and Air Combat Maneuvering/Short Range Search and Track development. This budget supports AN/APG-79 integration into the Advanced EW suite as a contributing wideband sensor. It also includes upgrades to RADAR Instrumentation, test and evaluation assets, threat assets, and upgraded modeling and simulation of both clean and Electronic Attack threat environments. This budget includes the overarching Anti-Surface Warfare (ASuW) software improvements, which includes Aided Target Recognition (AiTR), and Strike Accelerator/Kill Chain capabilities. This budget request supports development and testing of design modifications to address obsolescence issues with APG-65, APG-73 and APG-79 RADAR systems. USMC upgrades to the platform are being developed to include capability expansion of AESA Radar for F/A-18 A-D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Distributed Targeting - Counter-Electronic Attack (CEA) Software Development, Developmental Testing, Operational Testing, & Integration	7.564	7.239	10.819	0.000	10.819
Articles:	-	-	-	-	-
Description: Funding provided for the support of hardware (HW) and software (SW) capabilities development, integration and associated testing for AESA, ASuW and Strike Accelerator.					
FY 2022 Plans: Continue Counter-Electronic Attack II(CEA) HW/SW development in support of AESA radar capability upgrades. Funds engineering efforts for software development and integration of active and passive kill chain capabilities and sensors into the AESA Radar in support of CEA. Funding supports USMC capability upgrades for integration					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
and capability expansion of AESA Radar for F/A-18 A-D. Continue the development of Aided Target Recognition software and hardware. ***FY 2023 Base Plans:*** This budget request supports development to provide new instantaneous bandwidth capability in the AN/APG-79 through software upgrades. It supports the incorporation of correction of deficiencies for Anti-Surface Warfare (ASuW) software improvements, which includes Aided Target Recognition (AiTR), and Strike Accelerator/ Kill Chain capabilities. Funding also supports development and testing of design modifications to address cybersecurity enhancements. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $3.580 million in funding from FY2022 to FY2023 due to development of a wideband radar upgrade to support the Advanced EW suite, platform integration of radar capability improvements, software corrections, and government flight test and evaluation and funding for Rapid Field Assessment Radome Erosion Coating efforts.					
Title: F/A-18 RADAR Obsolescence Redesign ***Articles:*** ***Description:*** Funding provided for development and design modifications to address obsolescence issues in the RADAR. ***FY 2022 Plans:*** Funding provided for the continued development and redesign of the Anti-Surface Warfare (ASuW) Radar capability and Strike Accelerator. ***FY 2023 Base Plans:*** FY2023 funding supports the development and testing of design modifications to address obsolescence issues and minor modifications to software for fleet operations in the APG-79 RADAR systems. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***	0.484 -	0.439 -	0.427 -	0.000 -	0.427 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Decrease of $0.012 million from FY 2022 to FY 2023 due to the ramp-down of obsolescence redesign for RADAR efforts.					
Accomplishments/Planned Programs Subtotals	8.048	7.678	11.246	0.000	11.246

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0525: *F-18 Series Mod (OSIP 002-07)*	367.890	327.571	480.663	-	480.663	668.229	945.654	1,036.635	1,195.716	Continuing	Continuing
• APN/0145: *FA-18E/F*	1,778.554	87.832	90.865	-	90.865	84.386	2.748	33.579	0.000	0.000	52,601.934

Remarks

D. Acquisition Strategy

The AESA program continues developmental efforts following a successful Full Rate Production milestone decision, after completing a two-phase Acquisition approach during the FY 1999 through FY 2007 timeframe. This strategy continues utilization of reform initiatives such as: early partnering with industry; leveraging industry investment; optimizing use of Commercial Off-The Shelf software and Non-Developmental Item, using Cost as an Independent Variable, and Electronic Data Deliverables. Basic Ordering Agreement orders are in place for Boeing, the airframe prime manufacturer/integrator, and Raytheon, the Radio Detection and Ranging RADAR manufacturer, for focused risk reduction and sustainment prior to developmental activities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting Systems Engineering - Capabilities	WR	NAWCWD : China lake, CA	3.119	1.077	Nov 2020	0.500	Nov 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Distributed Targeting Systems Engineering	WR	NAWCAD : Pax River, MD	12.378	2.068	Nov 2020	1.084	Nov 2021	0.946	Nov 2022	-		0.946	0.900	17.376	-
Distributed Targeting Product Development Aided Target Recongnition	WR	NAWCWD CL : China lake, CA	0.000	0.372	Nov 2020	0.851	Nov 2021	0.000		-		0.000	0.000	1.223	-
Radar Advanced Development	WR	NSMA : Arlington, VA	0.000	0.000		0.875	Nov 2021	5.845	Dec 2022	-		5.845	21.770	28.490	-
Prior Year Prod Dev Cost no longer funded in FYDP	Various	Various : Various	557.047	0.000		0.000		0.000		-		0.000	0.000	557.047	-
		Subtotal	572.544	3.517		3.310		6.791		-		6.791	Continuing	Continuing	N/A

Remarks

Increase from FY 2022 to FY 2023 in support of classified efforts with NSMA.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting Software Development (Instrumentation)	WR	NAWCWD : China Lake, CA	45.549	0.161	Nov 2020	0.163	Nov 2021	0.165	Nov 2022	-		0.165	0.697	46.735	-
Radar Advanced Development Chamber Support	WR	NSMA : Arlington, VA	0.520	0.536	Dec 2020	0.544	Dec 2021	0.551	Dec 2022	-		0.551	2.246	4.397	-
Distributed Targeting Gov't Engineering Support	WR	NAWCAD : PAX River, MD	2.904	1.689	Nov 2020	1.749	Nov 2021	1.770	Nov 2022	-		1.770	7.195	15.307	-
Prior Year Support cost no longer funded in the FYDP	Various	Various : Various	4.684	0.000		0.000		0.000		-		0.000	0.000	4.684	-
		Subtotal	53.657	2.386		2.456		2.486		-		2.486	10.138	71.123	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting Operational Test	WR	NAWCWD : China Lake, CA	3.481	1.052	Nov 2020	0.881	Nov 2021	0.910	Nov 2022	-		0.910	3.282	9.606	-
Radar Obsol Redesign Operational Test	WR	NAWCAD : PAX River, MD	0.210	0.288	Nov 2020	0.239	Nov 2021	0.223	Nov 2022	-		0.223	0.598	1.558	-
Prior Year T&E cost no longer funded in FYDP	Various	Various : Various	112.086	0.000		0.000		0.000		-		0.000	0.000	112.086	-
		Subtotal	115.777	1.340		1.120		1.133		-		1.133	3.880	123.250	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting CSS Program Management Support (Seaport CSS)	C/CPFF	Various : Various	9.410	0.505	Dec 2020	0.510	Dec 2021	0.526	Dec 2022	-		0.526	2.017	12.968	12.968
Distributed Targeting Gov't Program Management Support	WR	NAWCAD : Pax River, MD	2.370	0.068	Nov 2020	0.066	Nov 2021	0.069	Nov 2022	-		0.069	0.286	2.859	-
Distributed Targeting Travel	Various	NAVAIR : Pax River, MD	1.831	0.036	Oct 2020	0.017	Oct 2021	0.037	Oct 2022	-		0.037	0.157	2.078	-
Radar Obsol Redesign CSS Support	C/CPFF	Various : Various	3.513	0.162	Dec 2020	0.165	Dec 2021	0.169	Dec 2022	-		0.169	0.587	4.596	4.596
Radar Obsol Redesign Gov't Program Management	WR	NAWCAD : Pax River, MD	1.202	0.022	Nov 2020	0.022	Nov 2021	0.023	Nov 2022	-		0.023	0.096	1.365	-
Radar Obsol Redesign Travel	Various	NAVAIR : Pax River, MD	0.149	0.012	Oct 2020	0.012	Oct 2021	0.012	Oct 2022	-		0.012	0.052	0.237	-
		Subtotal	18.475	0.805		0.792		0.836		-		0.836	3.195	24.103	N/A

Remarks

Increase from FY 2022 to FY 2023 for management support due to development of AESA radar capability upgrades.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	760.453	8.048		7.678		11.246		-		11.246	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

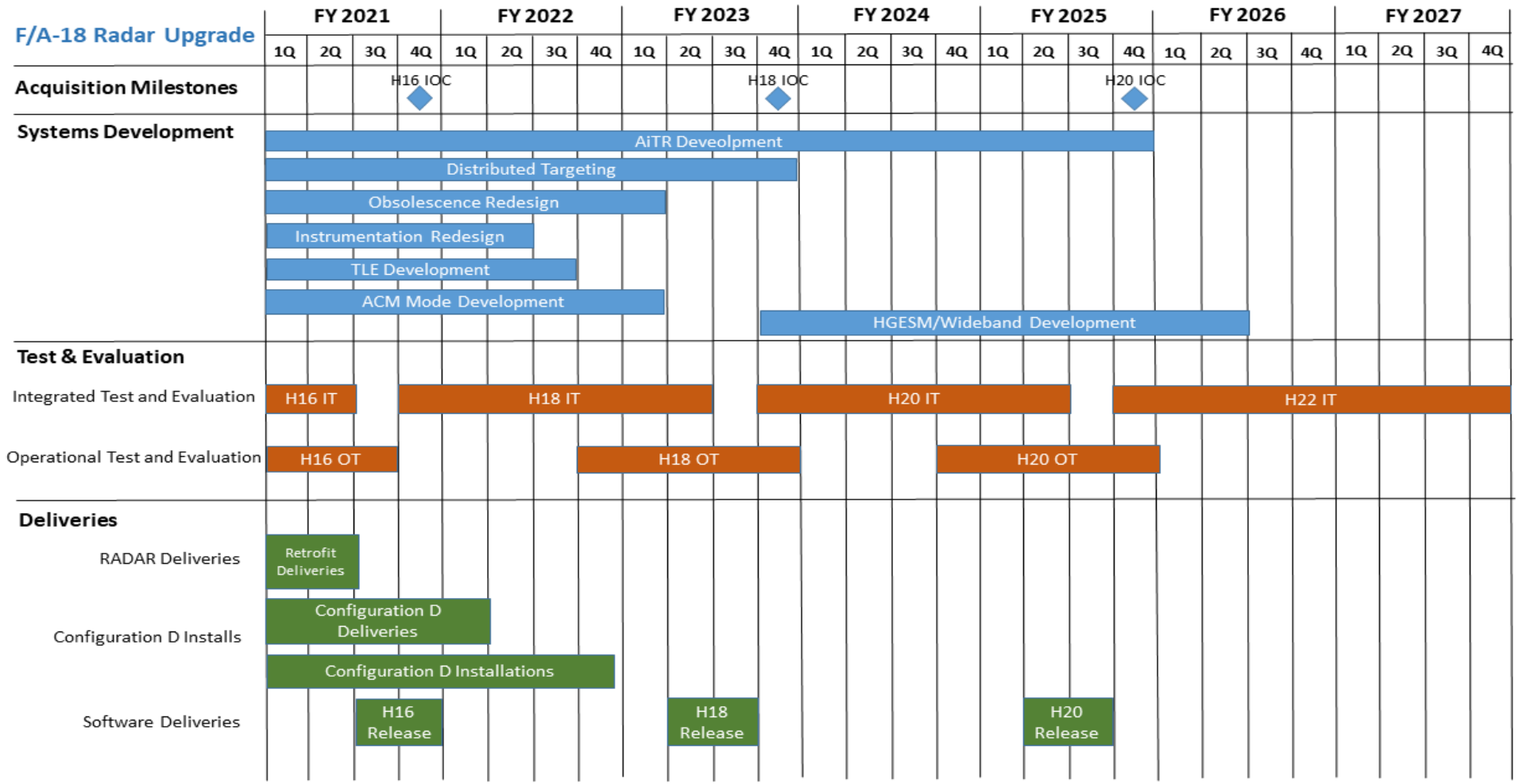

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
F/A-18 Radar Ugrade				
Acquisition Milestones: Milestones: H16 IOC	4	2021	4	2021
Acquisition Milestones: Milestones: H18 IOC	4	2023	4	2023
Acquisition Milestones: Milestones: H20 IOC	4	2025	4	2025
Systems Development: Hardware/Software Development: AiTR Development	1	2021	4	2025
Systems Development: Hardware/Software Development: Distributed Targeting Development	1	2021	4	2023
Systems Development: Hardware/Software Development: Obsolescence Redesign Development & Testing	1	2021	1	2023
Systems Development: Hardware/Software Development: Instrumentation Development	1	2021	2	2022
Systems Development: Hardware/Software Development: TLE Development	1	2021	3	2022
Systems Development: Hardware/Software Development: ACM Mode Development	1	2021	1	2023
Systems Development: Hardware/Software Development: HGESM/Wideband Development	4	2023	2	2026
Test & Evaluation: Integrated Test & Evaluation: H16 Integration Testing	1	2021	2	2021
Test & Evaluation: Integrated Test & Evaluation: H18 Integration Testing	4	2021	2	2023
Test & Evaluation: Integrated Test & Evaluation: H20 Integration Testing	4	2023	2	2025
Test & Evaluation: Integrated Test & Evaluation: H22 Integration Testing	4	2025	4	2027
Test & Evaluation: Operational Test & Evaluation: H16 Operational Testing	1	2021	4	2021
Test & Evaluation: Operational Test & Evaluation: H18 Operational Testing	4	2022	4	2023
Test & Evaluation: Operational Test & Evaluation: H20 Operational Testing	4	2024	4	2025
Production Milestones: Software Deliveries: H16 FLEET RELEASE	2	2021	4	2021
Production Milestones: Software Deliveries: H18 FLEET RELEASE	2	2023	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Software Deliveries: H20 FLEET RELEASE	2	2025	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2071 / *F/A-18 Block III*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2071: *F/A-18 Block III*	213.614	26.147	31.471	47.052	-	47.052	8.889	2.653	0.000	0.000	0.000	329.826
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

F/A-18 Block III is a series of development efforts that are required to deliver necessary combat capabilities to meet the objectives outlined in the National Defense Strategy and provide aircraft lethality and kill chain effectiveness. Enhancements under development include: Advanced EW upgrades, improved radar cross section, AESA Radar upgrades, alternative fire control solutions, and other improvements that enhance aircraft survivability, lethality, sensor fusion, networking effectiveness, and targeting upgrades at the tactical leading edge in highly contested environments. F/A18 Block III is a follow-on to Block II upgrades and the combined impact of these upgrades will ensure that the numerically predominant strike-fighter aircraft in the USN inventory remains lethal and survivable into the 2030's.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: F/A-18 Block III	26.147	31.471	47.052	0.000	47.052
Articles:	-	-	-	-	-
Description: F/A-18 Block III is a series of development efforts that are required to deliver necessary combat capabilities to meet the objectives outlined in the National Defense Strategy and provide aircraft lethality and kill chain effectiveness.					
FY 2022 Plans: The FY2022 funding provides for continued advanced engineering development engineering and studies and analysis focused on enhanced aircraft survivability, sensor fusion and networking effectiveness, and targeting at the tactical leading edge in highly contested environments. These Block III improvements are necessary to deliver required combat capabilities and upgrades to the F/A-18 to meet the objectives outlined in the National Defense Strategy.					
FY 2023 Base Plans: Funding provides for continued advanced engineering development, specifically the engineering and manufacturing development of survivability enhancements to include upgrades to the ALQ-214 jammer and ALR-76 Radar warning receiver, AN/APG-79 Radio Frequency (RF) data integration into EW systems, and centralized RF processing into mission computers.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase of $15.581 million from FY2022 to FY2023 provides for the development of the Integrated Jammer/ RWR ADVEW solution for the F/A-18E/F SLM and Block III Super Hornets and F/A-18 E/F Block III Correction of Deficiencies.					
Accomplishments/Planned Programs Subtotals	26.147	31.471	47.052	0.000	47.052

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0525: *F-18 Series*	367.890	327.571	480.663	-	480.663	668.229	945.654	1,036.635	1,195.716	Continuing	Continuing
• APN/0145: *FA-18E/F*	1,778.554	87.832	90.865	-	90.865	84.386	2.748	33.579	0.000	0.000	52,601.934
• APN/0505: *FA-18E/F & EA-18G Modernization & Sustainment*	399.348	482.899	572.681	-	572.681	629.256	518.199	522.603	542.178	5,731.357	9,398.521

Remarks

D. Acquisition Strategy

Block III capability upgrades will be incorporated into production line aircraft and retrofit through a series of Block III Engineering Change Proposals (ECPs). The ECPs will provide capability upgrades to Block II aircraft to give them Block III capabilities. Block II Fleet aircraft (Lots 26 and up) will receive capability upgrades when inducted for Service Life Modification (SLM) events.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block III Primary Development (CFT)	Various	Boeing : St Louis, MO	186.758	22.738	Dec 2020	0.000		0.000		-		0.000	0.000	209.496	209.496
Block III Primary Development	Various	TBD : TBD	0.000	0.000		28.726	Dec 2021	27.540	Dec 2022	-		27.540	6.180	62.446	-
		Subtotal	186.758	22.738		28.726		27.540		-		27.540	6.180	271.942	N/A

Remarks

Decrease from FY2022 to FY2023 for prime contractor efforts associated with the development of Block III Studies and Analysis on F/A-18E/F SLM and Block III Super Hornets.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support (AD)	WR	NAWCAD : Pax River, MD	15.221	1.711	Nov 2020	2.595	Dec 2021	15.960	Dec 2022	-		15.960	1.442	36.929	-
Development Support (WD)	WR	NAWCWD : China Lake, CA	5.406	0.565	Nov 2020	0.000		0.000		-		0.000	0.000	5.971	-
BLK III Price Fighters	WR	NAVSUP : Philadelphia, PA	0.079	0.000		0.000		0.000		-		0.000	0.000	0.079	-
		Subtotal	20.706	2.276		2.595		15.960		-		15.960	1.442	42.979	N/A

Remarks

Increase from FY 2022 to FY2023 for associated support to the development of ADVEW on F/A-18EF SLM and Block III Super Hornets.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation (NASA)	MIPR	NASA : Moffett Field, CA	4.317	0.000		0.000		0.000		-		0.000	0.000	4.317	-
Test & Evaluation (NASA)	MIPR	NASA : Langley, VA	0.937	0.000		0.000		0.000		-		0.000	0.000	0.937	-
Test & Evaluation (AD)	WR	NAWCAD : Pax River, MD	0.464	0.985	Dec 2020	0.000		3.000	Nov 2022	-		3.000	3.520	7.969	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	5.718	0.985		0.000		3.000		-		3.000	3.520	13.223	N/A

Remarks

Increase from FY 2022 to FY2023 for associated Test & Evaluation of advanced development of ALQ-214 Jammer and AN/APG-79 Radio Frequency (RF) data integration on F/A-18EF SLM and Block III Super Hornets.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Seaport CSS	C/CPFF	Ausley : Pax River, MD	0.287	0.000		0.000		0.000		-		0.000	0.000	0.287	0.287
Seaport CSS/PMMAC	C/CPFF	Tekla : Pax River, MD	0.145	0.148	Apr 2021	0.150	Apr 2022	0.552	Apr 2023	-		0.552	0.400	1.395	1.395
		Subtotal	0.432	0.148		0.150		0.552		-		0.552	0.400	1.682	N/A

Remarks

Increase from FY 2022 to FY2023 for associated management support to the development of ADVEW on F/A-18EF SLM and Block III Super Hornets.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	213.614	26.147		31.471		47.052		-		47.052	11.542	329.826	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

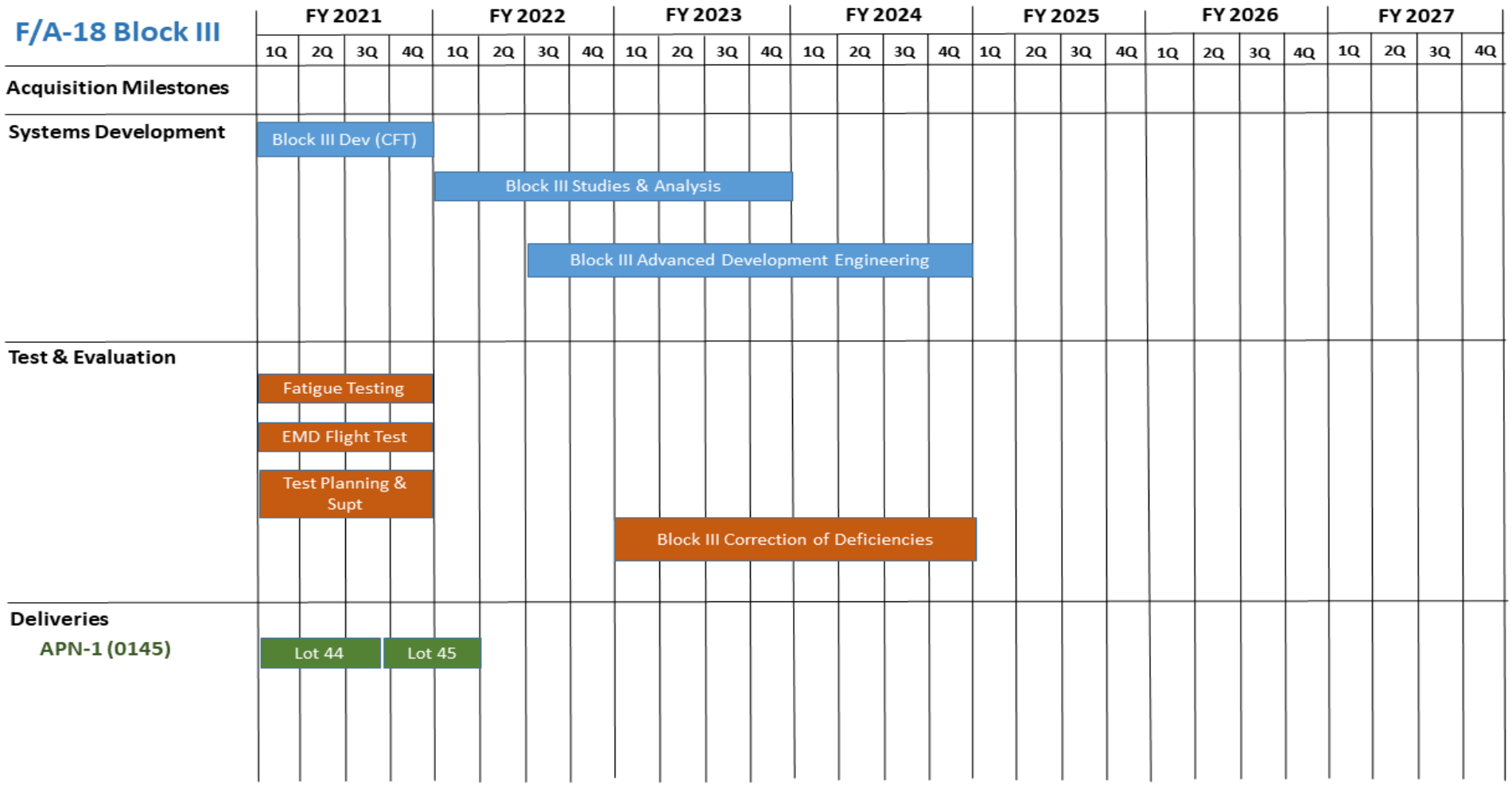

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
F/A-18 Block III				
System Development: Block III Development (CFT)	1	2021	4	2021
System Development: Block III Studies & Analysis	1	2022	4	2023
System Development: Block III Advanced Development Engineering	3	2022	4	2024
Test & Evaluation: Fatigue Testing	1	2021	4	2021
Test & Evaluation: EMD Flight Test	1	2021	4	2021
Test & Evaluation: Test Planning & Support	1	2021	4	2021
Test & Evaluation: Block III Correction of Deficiencies	1	2023	4	2024
Test & Evaluation: Deliveries: Production Milestones Lot 44	1	2021	3	2021
Test & Evaluation: Deliveries: Production Milestones Lot 45	3	2021	1	2022

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9099 / *Physiological Episodes*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9099: *Physiological Episodes*	0.000	5.404	4.462	2.966	-	2.966	1.667	1.176	0.808	0.822	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Efforts funded under Project Unit 9099 were previously funded under Project Unit 1662 in FY2020 and prior.

A. Mission Description and Budget Item Justification

Funding provides for design, development, integration, and test of platform improvements for F/A-18A-F and EA-18G Weapon Systems, as determined through a Root Cause and Corrective Action (RCCA) process, to mitigate and reduce the occurrences of Physiological Episode (PE) in Naval Aviation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Physiological Episode Mitigation	5.404	4.462	2.966	0.000	2.966
Articles:	-	-	-	-	-
Description: Funding provides for design, development, integration, and test of platform improvements for F/A-18A-F and EA-18G Weapon Systems, as determined through a Root Cause and Corrective Action (RCCA) process, to mitigate and reduce the occurrences of Physiological Episode (PE) in Naval Aviation.					
FY 2022 Plans: Completion of the RCCA investigation efforts. Continued work of the directed studies from RCCA to include further development of the Hornet health Assessment and Readiness Tool (HhART), and development efforts for platform improvements in the F/A-18A-F and EA-18G Weapon Systems to include flight test. Continue required logistics and engineering support.					
FY 2023 Base Plans: Completion of any directed studies from RCCA. Continued supports of the Hornet health Assessment and Readiness Tool (HhART), and development efforts for platform improvements in the F/A-18A-F and EA-18G Weapon Systems to include flight test. Continue required logistics and engineering support.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Decrease of $1.496 million from FY2022 to FY2023 is due to ramp down and planned completion of Root Cause and Corrective Action (RCCA) studies.					
Accomplishments/Planned Programs Subtotals	5.404	4.462	2.966	0.000	2.966

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0525: *F-18 SERIES*	367.890	327.571	480.663	-	480.663	668.229	945.654	1,036.635	1,195.716	Continuing	Continuing

Remarks

D. Acquisition Strategy

The F/A-18 Physiological Episode PU consists of efforts in support of finalizing the Root Cause and Corrective Action Investigation process, as well as any additional design, development, integration, and testing that will be required to mitigate and reduce the occurrence of Physiological Episodes (PE).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9099 / *Physiological Episodes*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Data Software Study	WR	NAWCTSD Orlando : Orlando, FL	0.000	1.690	Nov 2020	1.644	Nov 2021	1.687	Nov 2022	-		1.687	Continuing	Continuing	Continuing
		Subtotal	0.000	1.690		1.644		1.687		-		1.687	Continuing	Continuing	N/A

Remarks

Increase from FY 2022 to FY 2023 for extended development of machine learning models and data analytics to prevent physiological episodes via the Hornet health Assessment and Readiness Tool (HhART) program.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Developmental Engineering Support	Various	Various : Various	0.000	0.501	Nov 2020	0.476	Nov 2021	0.000		-		0.000	0.000	0.977	-
PE Gov't Engineering Support	WR	NAWCAD : Pax River, MD	0.000	1.101	Nov 2020	0.759	Nov 2021	0.375	Nov 2022	-		0.375	0.298	2.533	-
		Subtotal	0.000	1.602		1.235		0.375		-		0.375	0.298	3.510	N/A

Remarks

Decrease from FY 2022 to FY 2023 in Gov't Engineering support is due to the planned completion of Root Cause and Corrective Action (RCCA) investigation efforts.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Developmental Test & Eval	WR	NAWCAD : Pax River, MD	0.000	1.653	Nov 2020	1.117	Nov 2021	0.473	Nov 2022	-		0.473	0.382	3.625	-
		Subtotal	0.000	1.653		1.117		0.473		-		0.473	0.382	3.625	N/A

Remarks

Decrease from FY 2022 to FY 2023 in Developmental Test and Evaluation is due to the planned completion of Root Cause and Corrective Action (RCCA) investigation efforts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Program Management Support	WR	NAWCAD : Pax River, MD	0.000	0.068	Nov 2020	0.068	Nov 2021	0.069	Nov 2022	-		0.069	0.192	0.397	-
PE Seaport CSS	C/CPFF	Wyle Lab : Pax River, MD	0.000	0.341	Dec 2020	0.348	Dec 2021	0.000		-		0.000	0.000	0.689	0.689
PE PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.000		0.337	Apr 2023	-		0.337	0.143	0.480	0.480
PE Travel	Various	NAVAIR : Pax River, MD	0.000	0.050	Oct 2020	0.050	Oct 2021	0.025	Oct 2022	-		0.025	0.075	0.200	-
		Subtotal	0.000	0.459		0.466		0.431		-		0.431	0.410	1.766	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.404		4.462		2.966		-		2.966	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

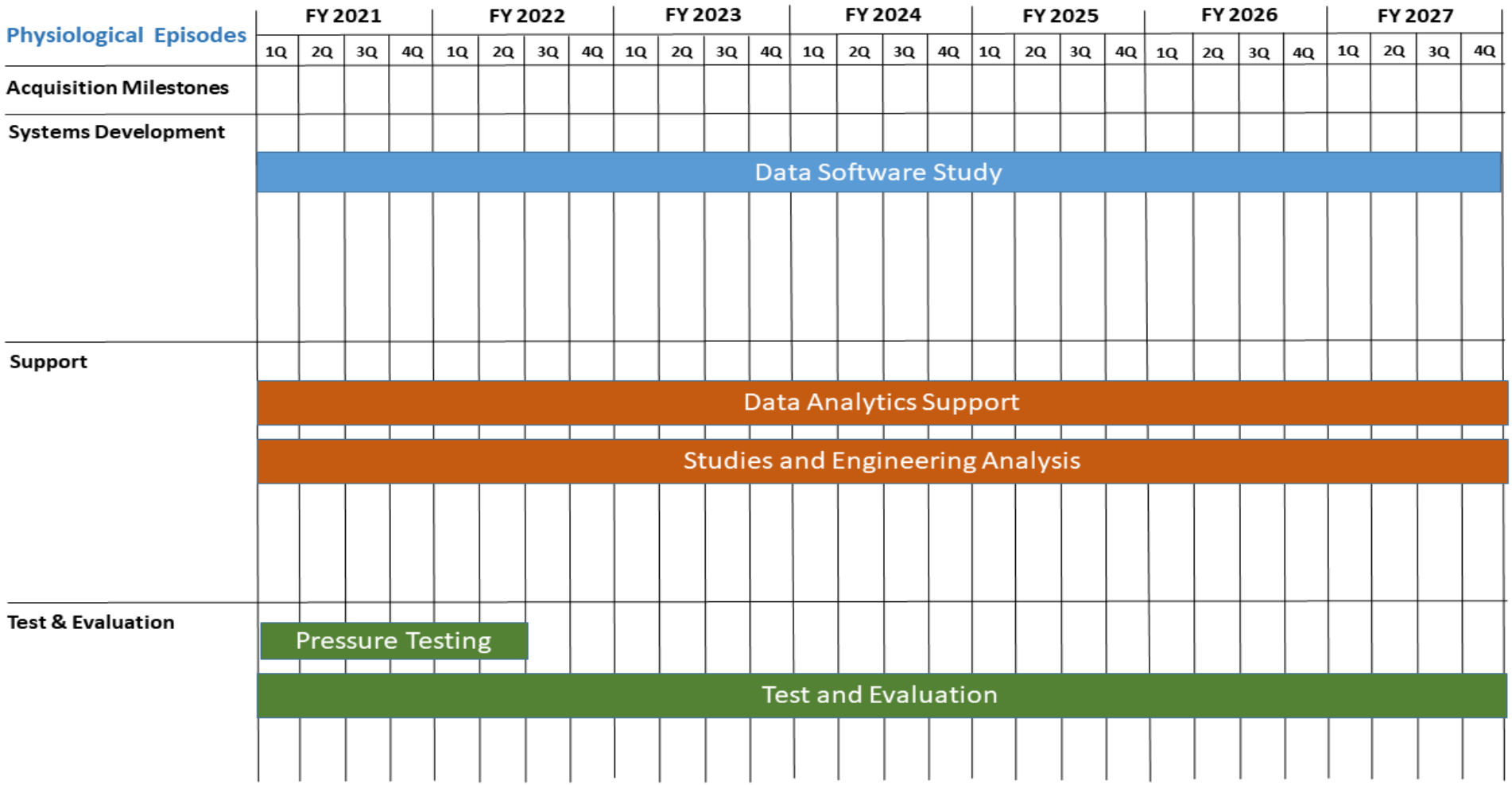

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Physiological Episodes Mitigation				
System Development: Data Software Study	4	2021	2	2027
Support: Office of Naval Research Data Analytics Support	1	2021	4	2027
Support: Physiological Episodes Studies and Analysis Engineering	1	2021	4	2027
Test and Evaluation: Pressure Testing	1	2021	2	2022
Test and Evaluation: Physiological Episode Test and Evaluation	1	2021	1	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9999: *Congressional Adds*	13.322	16.411	30.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	59.733
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Noise Reduction: Research, Development, Test and Evaluation (RDT&E) funding to support the redesign of Chevron seals to reduce engine exhaust plume noise. Numerous solutions have been evaluated. Chevron seals were determined to be the favorable solution for the F/A-18 and EA-18G. Previous testing of F414 chevrons demonstrated satisfactory noise reduction up to 80% power, but did not satisfy noise reduction requirements at full power. A possible cause of this problem has been identified. There are re-design options available to sustain noise reduction up to full power. Additional development and test will be required to finalize the Chevron design to achieve the desired noise reduction at all power levels. The subject funding will support the final design qualification efforts and ECP development of the downselected design. Other design options that will be explored are Contoured Inserts (COINs) that have had previous design work funded through ONR. Engine sets may be procured for follow on ground testing and evaluation.

Beacon Obsolescence Research: Research, Development, Test and Evaluation (RDT&E) funding to support APN-245 Automatic Carrier Landing System (ACLS) redesign needed due to obsolescence. The ACLS Radar Beacon enables long-range acquisition and precision guidance of F-18 to the carrier deck in all-weather conditions by providing a high-power, fixed, point-source radar return that eliminates radar scintillation noise.

Fifth Generation Sensor Fusion Study: Research, Development, Test and Evaluation (RDT&E) funding to support the maturation of the SLATE (Secure LVC Advanced Training Environment) technologies through an Advanced Technology Demonstration (ATD) effort. The ATD is expected to inform US Navy Programs of Record (POR) regarding technical and operational requirements for usable LVC (Live, Virtual, Constructive) capabilities and Joint Service PORs options for support to the warfighter.

Growler Noise Mitigation: Research, Development, Test and Evaluation (RDT&E) funding to support reduction of F414 noise by 3dB with no measurable impact to engine thrust.

Training Technology: Research Development Test & Evaluation (RDT&E) funding to facilitate the transition of DoD Joint Interoperable Effects Based Training enabled by Synthetic Inject To Live; Live Virtual Constructive (LVC) recently demonstrated during the Secure LVC Advanced Training Environment flight events at Pax River, MD. More specifically, these funds provide F-35 Sensor Fusion Study Phase II; the Coalition Cross Domain Solution (Encrypted LVC Integrated Training Environment - ELITE); which is the number one Coalition Warfighting Project for INDOPACOM with Royal Australian Air Force (RAAF). It also provides the Secure Live-Virtual-Constructive (LVC) Advanced Training Environment (SLATE) team's transition support into Tactical Combat Training System (TCTS) II PoR.

Civil Instrument Landing System: Research Development Test & Evaluation (RDT&E) funding provided to investigate alternatives to integrate Civilian Instrument Landing System or a Precision Approach Landing System into the F/A-18E/F and EA-18G aircraft. This capability is not available in the F/A-18E/Fs and it is limited to select EA-18Gs.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Solid State Light Off Detector: Research Development Test & Evaluation (RDT&E) funding to explore design concepts to implement a solid state light-off detector in an F414 application. The program will identify concepts to explore in addition to a qualification and implementation plan to field the design into F414 Fleet assets.

Neural Network Algorithms on Advanced Processors: Research Development Test & Evaluation (RDT&E) Neural Network Algorithms funding on advanced processors will enable artificial intelligence and machine learning algorithm support for tactical decision making at increased speed and reduced aircrew workload in support of advance warfighting capabilities of the F/A-18 and EA-18G platforms. Neural network algorithms on advanced processors will be integrated into legacy processing systems with growth reserves that allows for capability upgrades without future hardware redesign during upgrades.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: Noise reduction research ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	0.000	4.000
Congressional Add: Beacon Obsolescence Issues ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	2.896	0.000
Congressional Add: Fifth Generation Sensor Fusion Study ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	9.654	0.000
Congressional Add: Growler Noise Mitigation ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	3.861	0.000
Congressional Add: Training technology ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	0.000	10.000
Congressional Add: Civil instrument landing system ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	0.000	3.000
Congressional Add: Solid state light off detector	0.000	8.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: N/A ***FY 2022 Plans:*** N/A		
Congressional Add: Neural network algorithms on advanced processors ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	0.000	5.000
Congressional Adds Subtotals	16.411	30.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Beacon Obsolescence Research	C/CPFF	SNC : Lakehurst,NJ	0.000	2.646	Aug 2021	0.000		0.000		-		0.000	0.000	2.646	2.646
Growler Noise Mitigation (Tollgate 3-6)	C/CPFF	GE Aviation : Lynn, Massachusetts	0.000	0.500	Jun 2021	0.000		0.000		-		0.000	0.000	0.500	0.500
Growler Noise Mitigation (Tollgate 6-9)	C/CPFF	GE Aviation : Lynn, Massachusetts	0.000	1.761	Sep 2022	0.000		0.000		-		0.000	0.000	1.761	1.761
5th Gen Sensor Fusion	C/CPFF	Boeing : St. Louis, MO	0.000	2.387	May 2021	0.000		0.000		-		0.000	0.000	2.387	2.387
5th Gen Sensor Fusion	C/CPFF	Cubic : Orlando, FL	0.000	3.838	May 2021	0.000		0.000		-		0.000	0.000	3.838	3.838
5th Gen Sensor Fusion	C/CPFF	GTRi : Atlanta, GA	0.000	0.500	May 2021	0.000		0.000		-		0.000	0.000	0.500	0.500
Noise Reduction	C/CPFF	GE Aviation : Lynn, Massachusettes	0.000	0.000		2.000	Aug 2022	0.000		-		0.000	0.000	2.000	2.000
Training Technology	C/CPFF	BGI LLC : Akron, OH	0.000	0.000		0.550	May 2022	0.000		-		0.000	0.000	0.550	0.550
Civil Instrument Landing System	C/CPFF	TBD : TBD	0.000	0.000		2.500	Aug 2022	0.000		-		0.000	0.000	2.500	2.500
Solid State Light Off Detector	C/CPFF	TBD : TBD	0.000	0.000		4.000	Aug 2022	0.000		-		0.000	0.000	4.000	4.000
Neural Network Algorithms (1)	C/CPFF	TBD : TBD	0.000	0.000		2.000	Oct 2022	0.000		-		0.000	0.000	2.000	2.000
Neural Network Algorithms	C/CPFF	TBD : TBD	0.000	0.000		2.000	Jul 2023	0.000		-		0.000	0.000	2.000	2.000
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	10.913	0.000		0.000		0.000		-		0.000	0.000	10.913	-
		Subtotal	10.913	11.632		13.050		0.000		-		0.000	0.000	35.595	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
5th Gen Sensor Fusion	MIPR	MIT : Lexington, MA	0.000	0.120	May 2021	0.000		0.000		-		0.000	0.000	0.120	-
5th Gen Sensor Fusion	C/CPFF	2 Circle : Arlington, VA	0.000	0.800	May 2021	0.000		0.000		-		0.000	0.000	0.800	0.800
Training Technology	C/CPFF	Cubic : Orlando, FL	0.000	0.000		0.500	May 2022	0.000		-		0.000	0.000	0.500	0.500

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Training Technology	C/CPFF	Boeing : St. Louis, MO	0.000	0.000		0.500	May 2022	0.000		-		0.000	0.000	0.500	0.500
Training Technology	C/CPFF	2 Circle : Arlington, VA	0.000	0.000		0.788	May 2022	0.000		-		0.000	0.000	0.788	0.788
Training Technology	C/CPFF	FTI : Washington DC	0.000	0.000		1.000	May 2022	0.000		-		0.000	0.000	1.000	1.000
Civil Instrument Landing System	WR	TBD : TBD	0.000	0.000		0.500	Aug 2022	0.000		-		0.000	0.000	0.500	-
Solid State Light Off Detector	WR	TBD : tbd	0.000	0.000		1.000	Aug 2022	0.000		-		0.000	0.000	1.000	-
Neural Network Algorithms	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.000	Jun 2022	0.000		-		0.000	0.000	1.000	-
Prior Year Support no longer funded in FYDP	Various	Various : Various	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
		Subtotal	0.200	0.920		5.288		0.000		-		0.000	0.000	6.408	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Beacon Obsolescence Research	WR	NAWCAD : Patuxent River,MD	0.000	0.250	Jul 2021	0.000		0.000		-		0.000	0.000	0.250	-
Growler Noise Mitigation	WR	NAWCAD : Patuxent River, MD	0.000	1.600	Jun 2021	0.000		0.000		-		0.000	0.000	1.600	-
5th Gen Sensor Fusion	WR	NAWCAD : Patuxent River, MD	0.000	1.167	Apr 2021	0.000		0.000		-		0.000	0.000	1.167	-
5th Gen Sensor Fusion	WR	NAWCWD : China Lake, CA	0.000	0.663	Apr 2021	0.000		0.000		-		0.000	0.000	0.663	-
5th Gen Sesnor Fusion	WR	NRL : Washington DC	0.000	0.100	May 2021	0.000		0.000		-		0.000	0.000	0.100	-
5th Gen Sensor Fusion	WR	NSWC : Corona, CA	0.000	0.079	May 2021	0.000		0.000		-		0.000	0.000	0.079	-
Noise Reduction	WR	NAWCAD : Patuxent River, MD	0.000	0.000		2.000	Aug 2022	0.000		-		0.000	0.000	2.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Training Technology	WR	NRL : Washington DC	0.000	0.000		1.170	May 2022	0.000		-		0.000	0.000	1.170	-
Training Technology	WR	MIT : Lexington, MA	0.000	0.000		0.450	May 2022	0.000		-		0.000	0.000	0.450	-
Training Technology	WR	TBD : TBD	0.000	0.000		4.100	May 2022	0.000		-		0.000	0.000	4.100	-
Solid State Light Off Detector	WR	TBD : TBD	0.000	0.000		3.000	Aug 2022	0.000		-		0.000	0.000	3.000	-
Prior Year Support no longer funded in FYDP	Various	Various : Various	2.209	0.000		0.000		0.000		-		0.000	0.000	2.209	-
		Subtotal	2.209	3.859		10.720		0.000		-		0.000	0.000	16.788	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Training Technology	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.900	May 2022	0.000		-		0.000	0.000	0.900	-
Training Technology	C/CPFF	Tekla : Patuxent River, MD	0.000	0.000		0.042	May 2022	0.000		-		0.000	0.000	0.042	0.042
		Subtotal	0.000	0.000		0.942		0.000		-		0.000	0.000	0.942	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.322	16.411		30.000		0.000		-		0.000	0.000	59.733	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

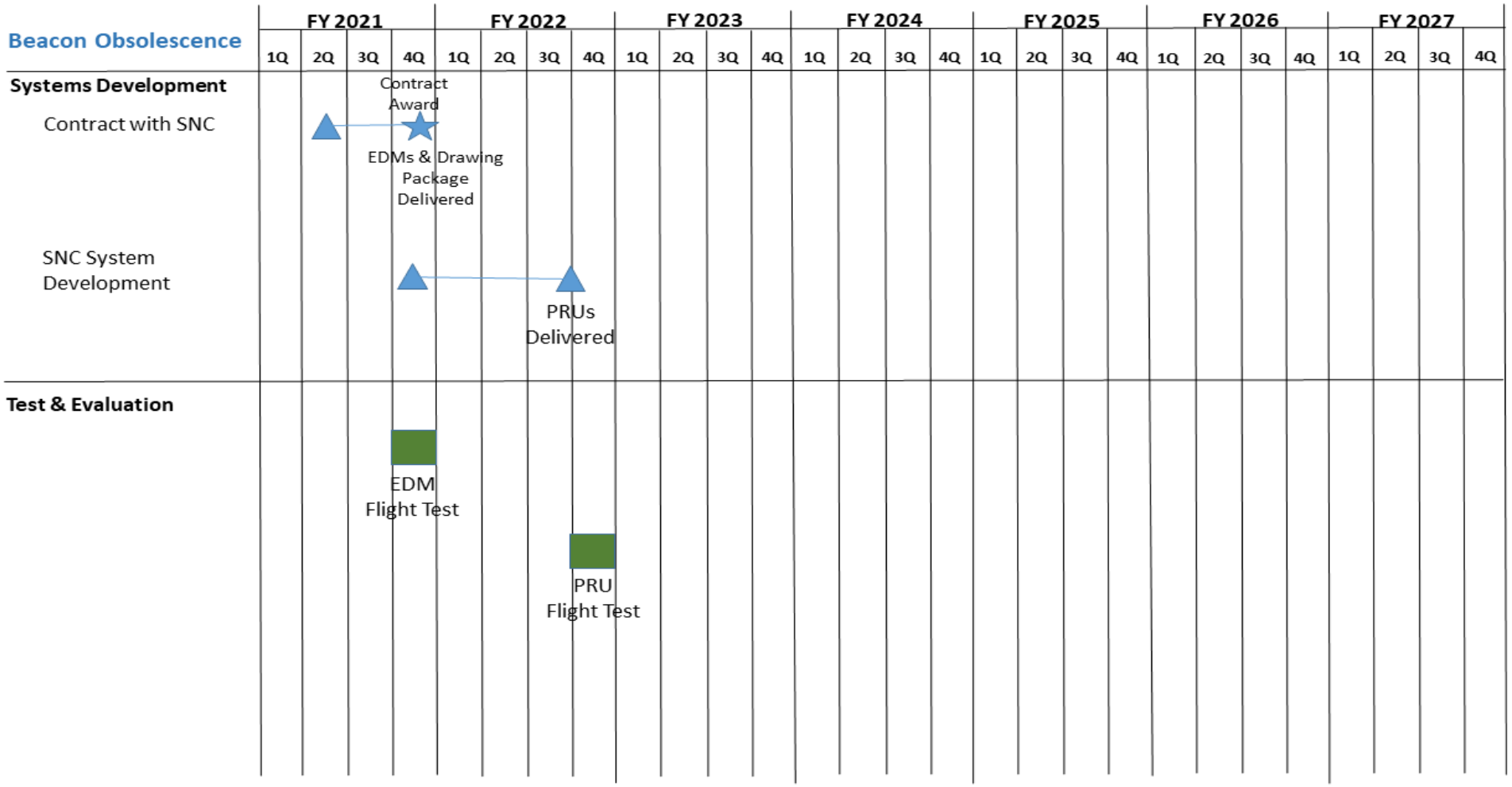

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

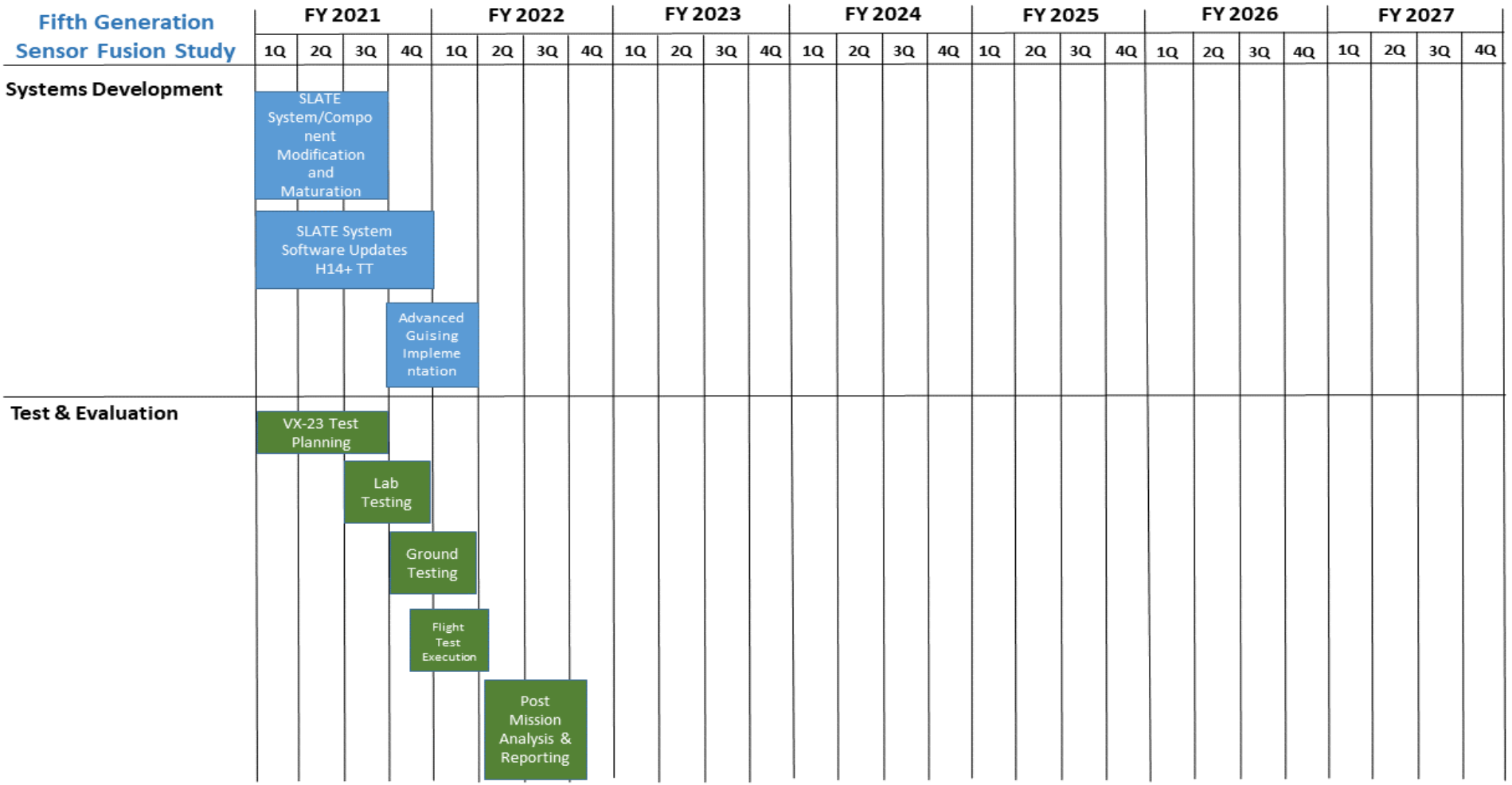

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

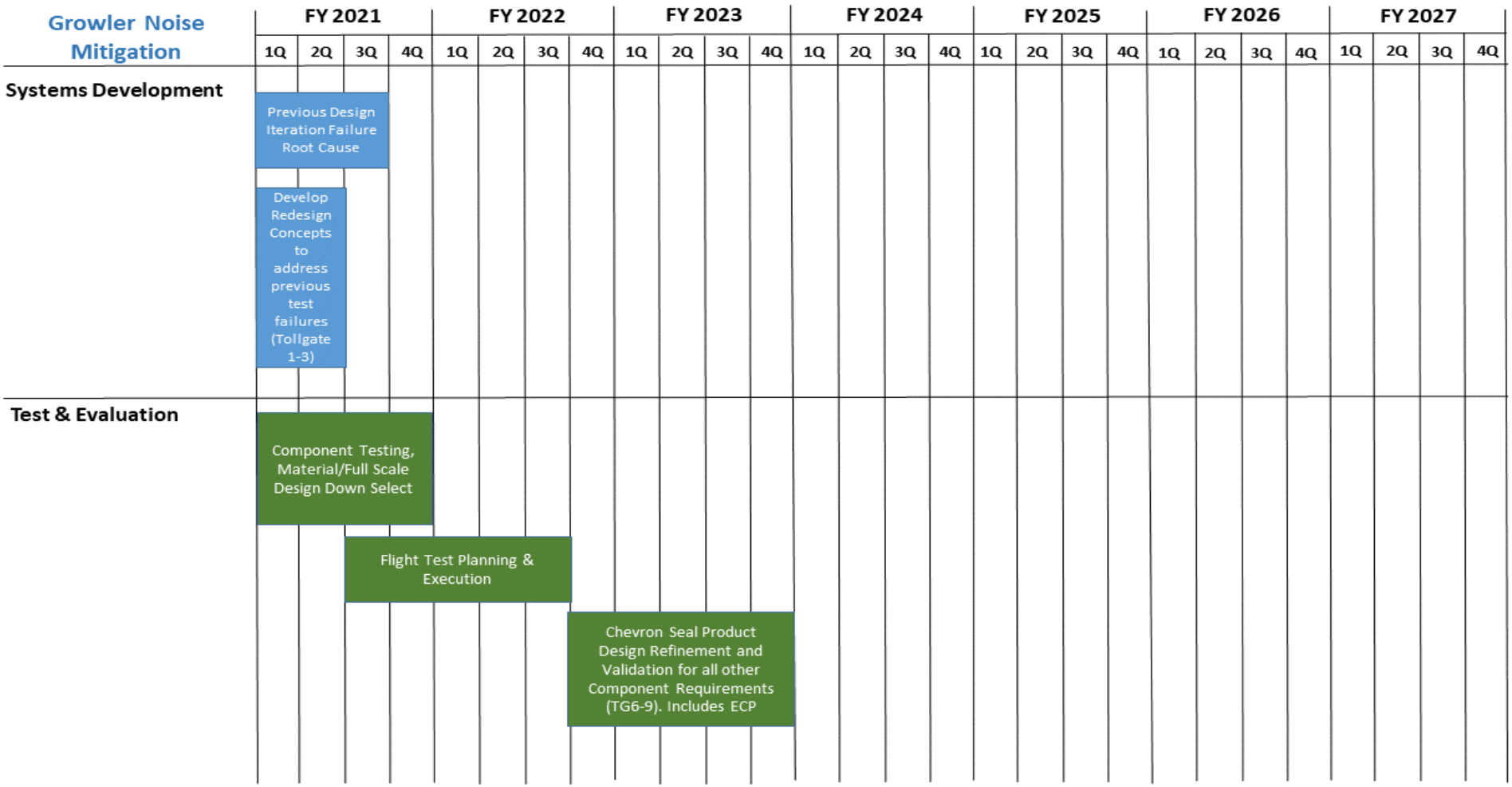

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

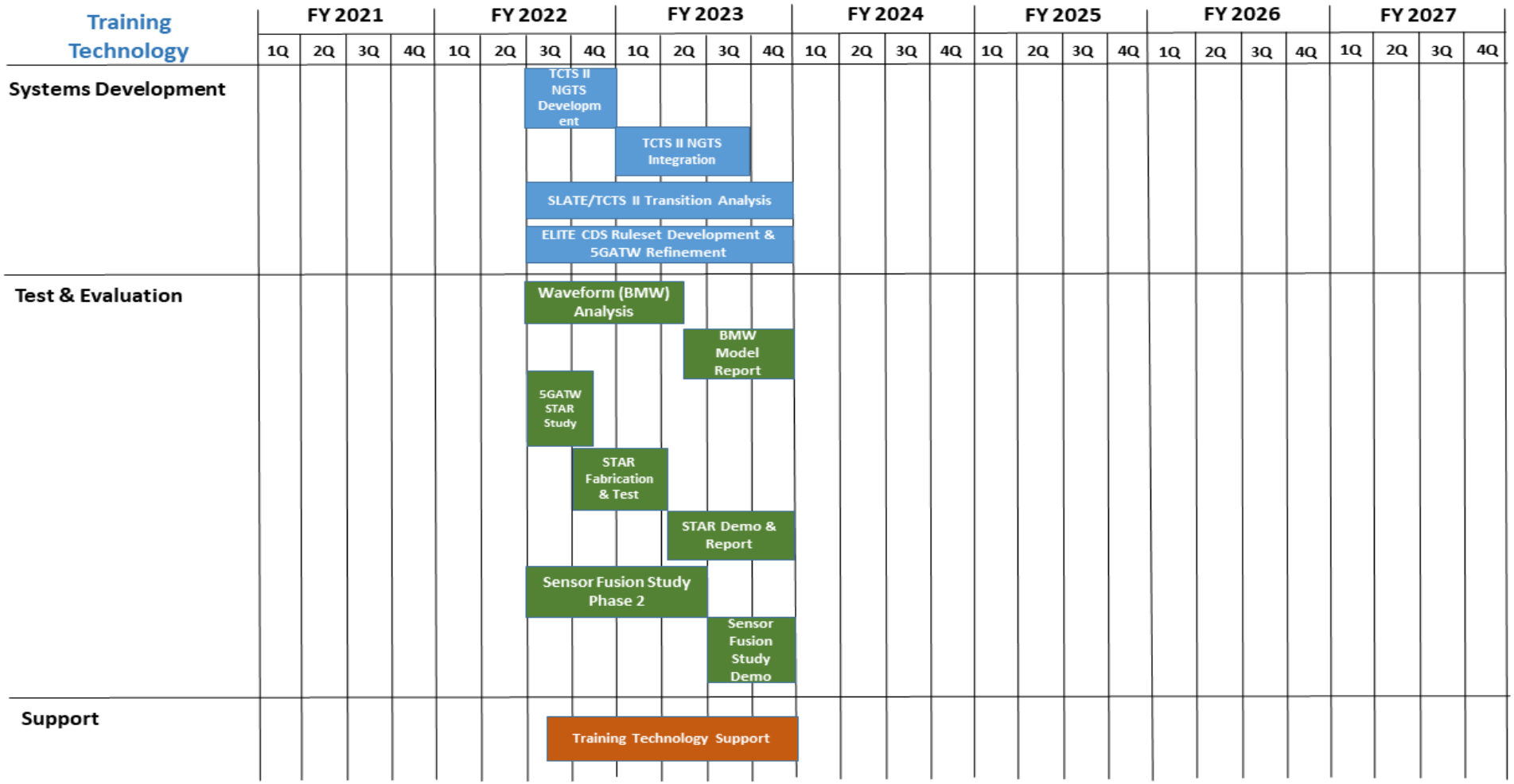

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

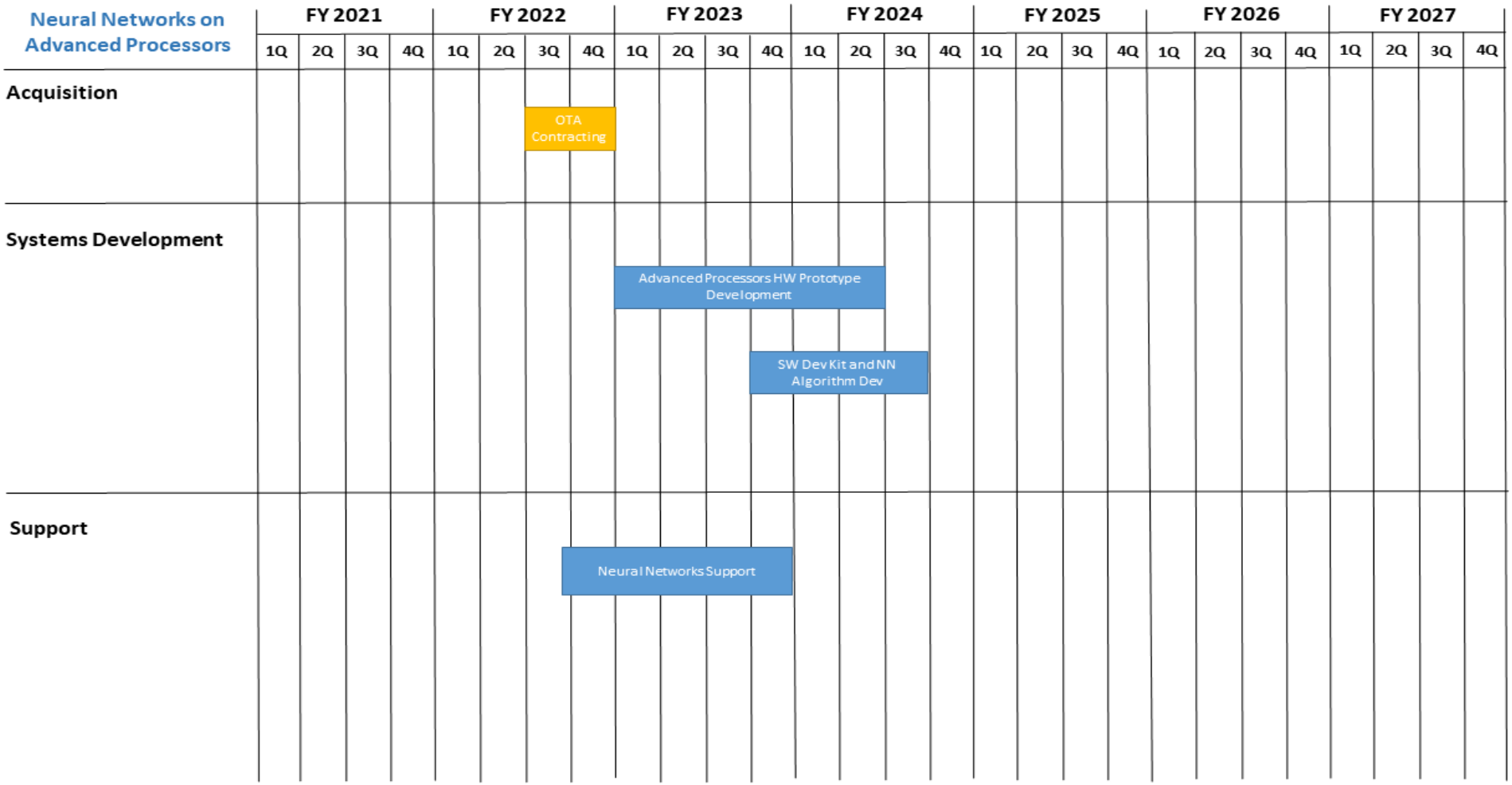

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

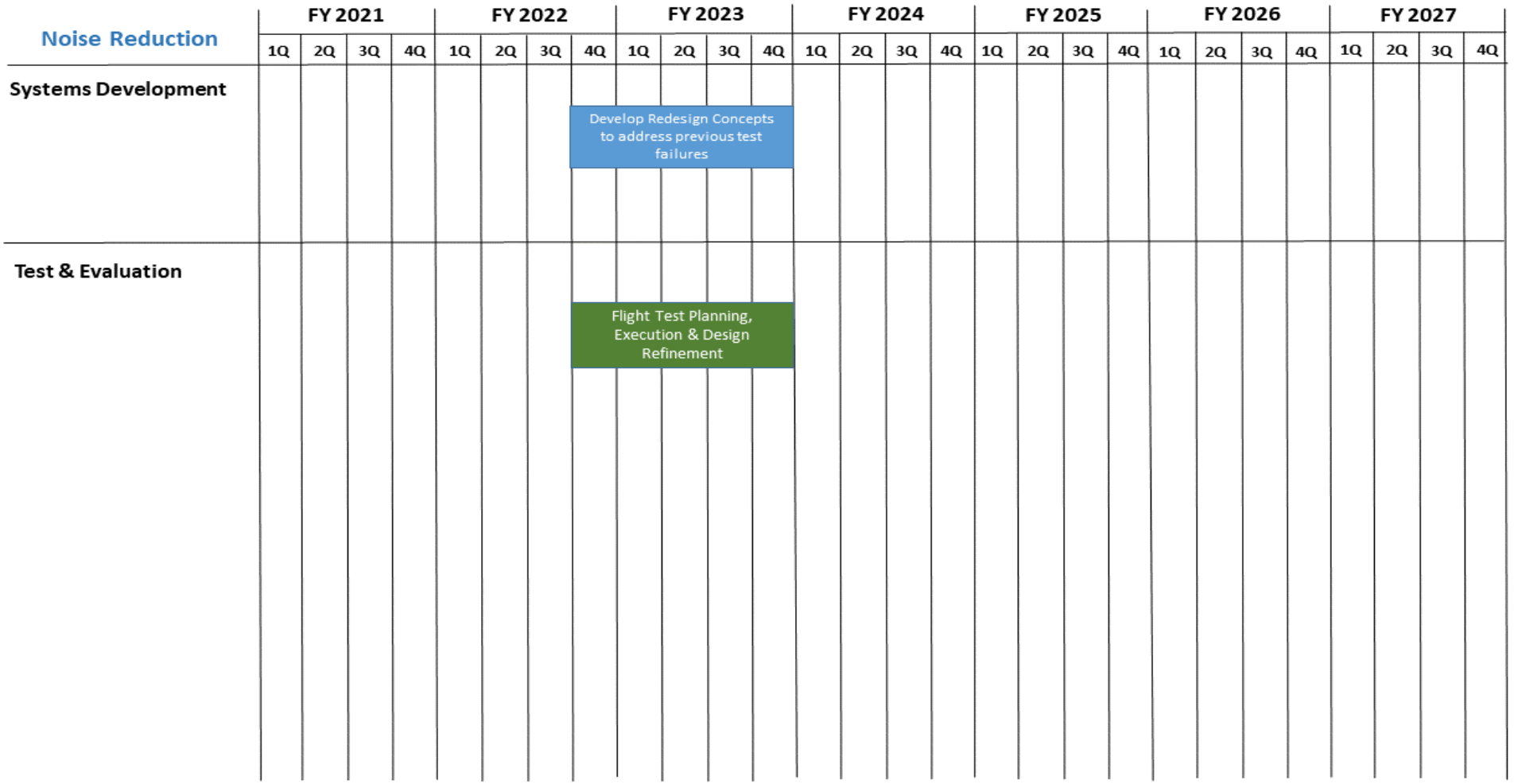

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

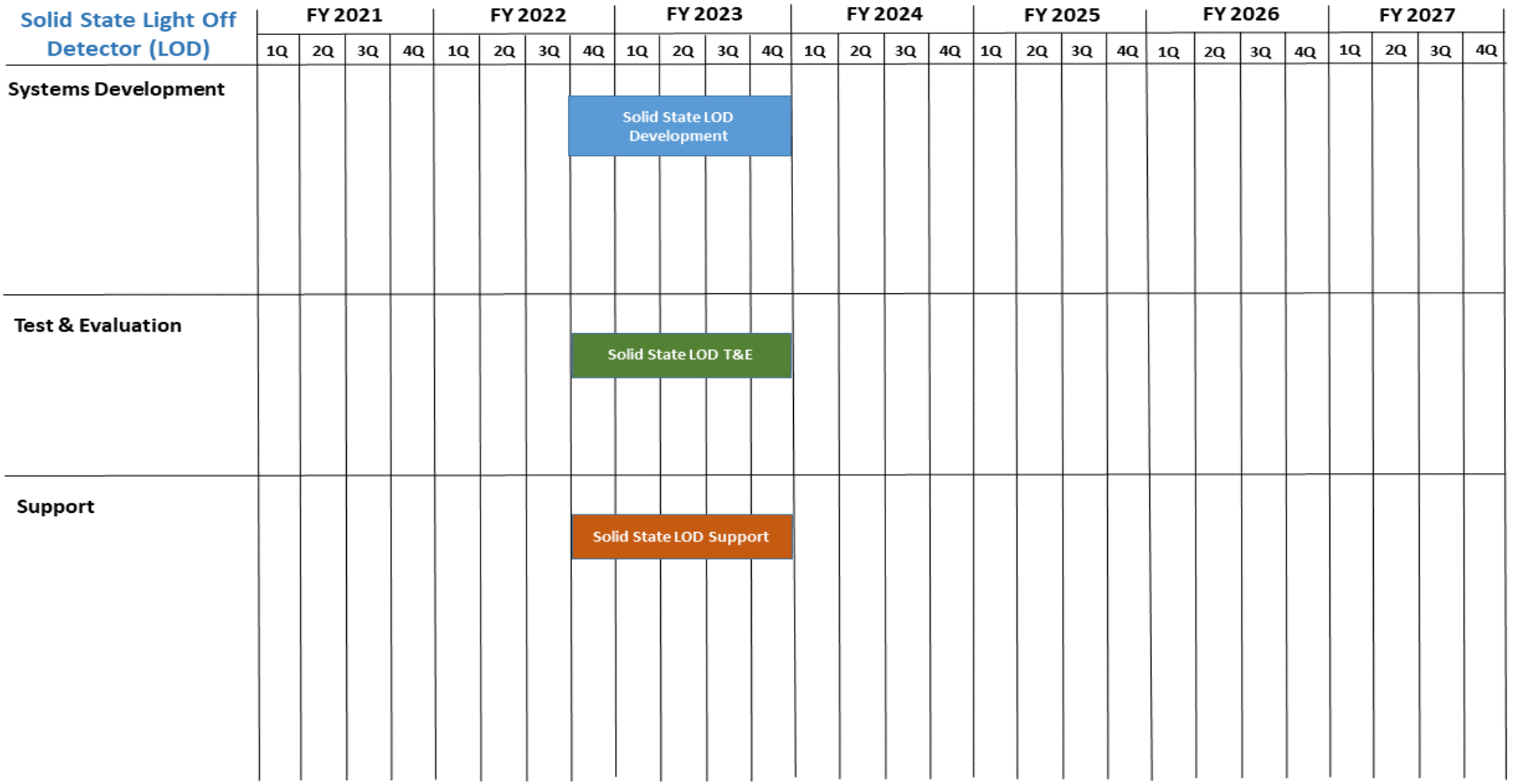

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

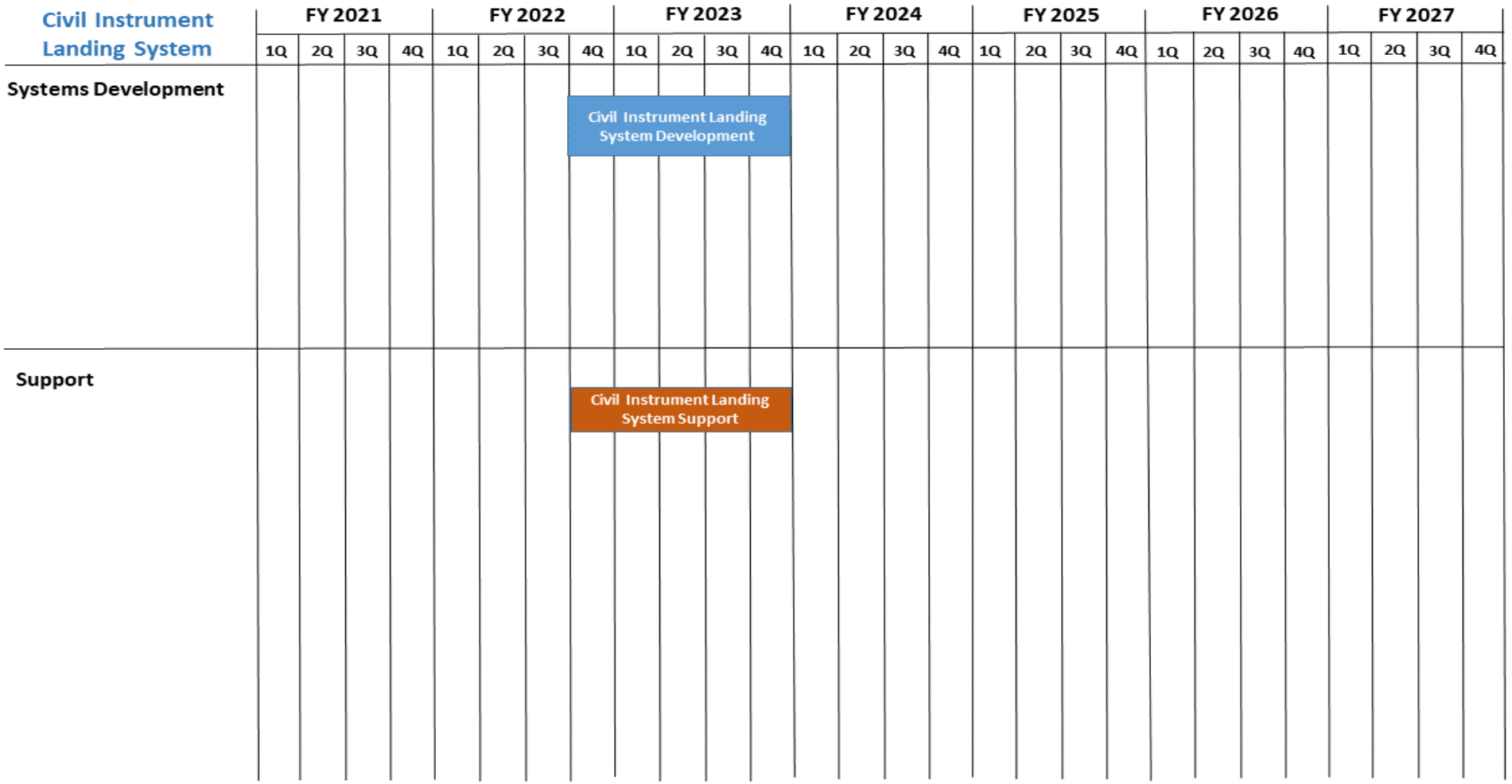

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Beacon Obsolescence Research				
Beacon Obsolescence EDMs & Drawings	2	2021	4	2021
Beacon Obsolescence Contract Award	4	2021	4	2021
Beacon Obsolescence System Development	4	2021	4	2022
EDM Flight Test	4	2021	4	2021
PRU Flight Test	4	2022	4	2022
Growler Noise Mitigation				
Previous Design Iteration Failure Root Cause	1	2021	3	2021
Develop Redesign Concepts to address previous test failures (Tollgate 1-3)	1	2021	3	2021
Component Testing, Material/Full Scale Design Down Select (Tollgate 3-6)	1	2021	4	2021
Flight Test Planning & Execution	2	2021	3	2022
Chevron Seal Product Design Refinement and Validation	3	2022	4	2023
Fifth Generation Sensor Fusion Study				
SLATE System/Component Modification and Maturation	1	2021	2	2021
SLATE System Software Updates H14+ TT	1	2021	2	2021
T&E: VX-23 Test Planning	1	2021	2	2021
T&E: Lab Testing	2	2021	3	2021
T&E: Ground Testing	2	2021	3	2021
Advanced Guising Implementation	4	2021	1	2022
Flight Test Execution	1	2022	1	2022
Post Mission Analysis & Reporting	1	2022	2	2022
Training Technology				
TCTS II NGTS Development	3	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TCTS II NGTS Integration	1	2023	3	2023
SLATE/TCTS II Tranisition Analysis	3	2022	4	2023
ELITE CDS Ruleset Dev & 5GATW Refinement	3	2022	4	2023
Waveform (BMW) Analysis	3	2022	2	2023
BMW Model Report	2	2023	4	2023
5GATW Star Study	3	2022	4	2022
STAR Fabrication & Test	4	2022	2	2023
STAR Demo & Report	2	2023	4	2023
Sensor Fusion Study Phase 2	3	2022	2	2023
Sensor Fusion Study Demo	3	2023	4	2023
Training Technology Support	3	2022	4	2023
Neural Network on Advanced Processors				
Other Transactional Authority (OTA) Contract	3	2022	4	2022
Advanced Processors HW Development	1	2023	2	2024
SW Development Kit and NN Alogroithm Dev	4	2023	3	2024
Neural Network Algorithms Support	3	2022	4	2023
Civil Instrument Landing System				
Civil Instrument Landing System Development	4	2022	4	2023
Civil Instrument Landing System T&E	2	2023	4	2023
Civil Instrument Landing System Support	4	2022	4	2023
Noise Reduction				
Noise Reduction Development	4	2022	4	2023
Noise Reduction T&E	4	2022	4	2023
Solid State Light Off Detector				
Solid State Light Off Detector Development	4	2022	4	2023
Solid State Light Off Detector T&E	4	2022	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Solid State Light Off Detector Support	4	2022	4	2022