Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy											Date: May 2021	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0605500N *I Multi-Mission Maritime Aircraft (MMA) (P-8A)*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	34.117	20.645	24.084	27.279	-	27.279	-	-	-	-	-	-
3368: *P-8 Improvements*	34.117	20.645	24.084	27.279	-	27.279	-	-	-	-	-	-

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 334

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) program was initiated in response to the Joint Requirements Oversight Council (JROC) validated Mission Needs Statement, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the P-8A Capability Production Document #791-88-09, validated and approved on 22 June 2009. A successful Critical Design Review was completed in June 2007. In August 2007 the Design Readiness Review was conducted and resulted in approval to obligate funding for the fabrication of the Stage II flight test aircraft. The first flight of P-8A occurred on 25 Apr 2009. Milestone C was successfully completed on 11 August 2010. The program completed Initial Operational Test and Evaluation (IOT&E) in March 2013 and achieved Initial Operational Capability (IOC) in November 2013. The Acquisition Decision Memorandum approved entry into Full Rate Production on January 3, 2014.

The primary objectives of Systems Development and Demonstration (SDD) are to perform the system detailed design, develop and produce Systems Integration Labs, develop and build ground and flight test articles, and conduct ground and flight tests to successfully achieve program milestones. Ground testing includes the conduct of static testing, fatigue testing and Live Fire Test and Evaluation. Six flight test aircraft have been built during SDD (PU 2696). These test aircraft are grouped into two stages based on which phase of the test program the aircraft will support. SDD Stage I flight test aircraft (FY06/Qty-3) support Integrated Test and Evaluation (IT&E). SDD Stage II flight test aircraft (FY09/Qty-3) supported the completion of IT&E and IOT&E after being updated to the production configuration. The SDD contract includes the development and initial building of training devices to support IOT&E. The scope of SDD includes activities necessary to facilitate an efficient transition of the fleet to achieve the P-8A IOC of SDD (PU 2696) in CY13. The scope of SDD also includes the engineering and verification of corrected deficiencies identified in testing and Fleet operational use. P-8A entered Production and Deployment phase in the 4th quarter of FY10 and entered Full Rate Production in 2nd quarter of FY14.

The P-8A MMA program's Assured Maritime Dominance Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW), and Intelligence, Surveillance, and Reconnaissance (ISR) activities include a sequence of Rapid Capability Insertions (RCI) and rapid development efforts to respond to evolving threats and adversary capabilities, which will retain cost effectiveness for winning major combat operations. In order to pace the threat, these efforts will incorporate incremental software and/or hardware improvements to existing sensor capabilities, communications systems, mission systems, weapons capabilities, training systems and Tactical Operations Center (TOC) /Tacmobile support to build on the P-8A capability baseline. These planned and emergent requirements will be prioritized through either the Navy Integration and interoperability (I&I) aligned Capability Prioritization Process (CPP), P-8A Tier 3 Capability Roadmap and/or through Fleet identification of an Urgent Operational Need. The CPP process is supported by detailed analysis and the maturations of developing technologies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605500N *I Multi-Mission Maritime Aircraft (MMA) (P-8A)*

Assured Maritime Dominance activities include principal mission lethality, survivability against kinetic and non-kinetic threats, and capability persistence in high-level threat environments. Rapid Development efforts increase lethality through optimization of kill-chain software systems, employment of Long Range Anti-Ship Missile (LRASM), Sonobuoy Rotary Launcher (SRL) improvements, and other weapon systems and Airborne Weapon Simulator (AWS) capabilities. RCI4 capabilities include kill-chain/gap analysis, ASW Enhancements, common weapons synchronization, and AWS continuation. RCI5 capabilities increase P-8A survivability through Radio Frequency Counter Measure (RFCM), P-8A Survivability Assurance and distributed sensor network improvements.

Budget Activity 5.
JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	21.472	24.424	28.416	-	28.416
Current President's Budget	20.645	24.084	27.279	-	27.279
Total Adjustments	-0.827	-0.340	-1.137	-	-1.137
• Congressional General Reductions	-	-0.340			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.827	0.000			
• Program Adjustments	0.000	0.000	2.000	-	2.000
• Rate/Misc Adjustments	0.000	0.000	-3.137	-	-3.137

Change Summary Explanation

FY 2022 includes a $2.000 Million increase for SRL improvements. The FY 2022 funding request was decreased by $1.137 Million to account for execution reductions and other miscellaneous adjustments.

Schedule: PU 3368 Schedule revised to incorporate further detail and the inclusion of SRL Improvements, RCI4 Kill-Chain/Gap Analysis and RCI5 Survivability Gap Analysis.

Radio Frequency Counter Measure (RFCM) Contract Award and RFCM Development delayed from 2Q 2020 to 4Q 2020 delayed due to program priority reassessment of Fleet requirements.

Long Range Anti-Ship Missile (LRASM) Contract Award and start of project execution delayed from 1Q 2021 to 3Q 2021.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605500N *I Multi-Mission Maritime Aircraft (MMA) (P-8A)*

RCI4 and RCI5 milestones delayed due to overall P-8A improvements budget affordability.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	Project (Number/Name) 3368 / *P-8 Improvements*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3368: *P-8 Improvements*	34.117	20.645	24.084	27.279	-	27.279	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 334

A. Mission Description and Budget Item Justification

The P-8A MMA program's Assured Maritime Dominance Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW), and Intelligence, Surveillance, and Reconnaissance (ISR) activities include a sequence of Rapid Capability Insertions (RCI) and rapid development efforts to respond to evolving threats and adversary capabilities, which will retain cost effectiveness for winning major combat operations. In order to pace the threat, these efforts will incorporate incremental software and/or hardware improvements to existing sensor capabilities, communications systems, mission systems, weapons capabilities, training systems and Tactical Operations Center (TOC) /Tacmobile support to build on the P-8A capability baseline. These planned and emergent requirements will be prioritized through either the Navy Integration and interoperability (I&I) aligned Capability Prioritization Process (CPP), P-8A Tier 3 Capability Roadmap and/or through Fleet identification of an Urgent Operational Need. The CPP process is supported by detailed analysis and the maturations of developing technologies.

Assured Maritime Dominance activities include principal mission lethality, survivability against kinetic and non-kinetic threats, and capability persistence in high-level threat environments. Rapid Development efforts increase lethality through optimization of kill-chain software systems, employment of LRASM, Sonobuoy Rotary Launcher (SRL) improvements, and other weapon systems and Airborne Weapon Simulator capabilities. RCI4 capabilities include kill-chain/gap analysis, ASW Enhancements, common weapons synchronization, and Airborne Weapon Simulator continuation. RCI5 capabilities increase P-8A survivability through Radio Frequency Counter Measure (RFCM), P-8A Survivability Assurance and distributed sensor network improvements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Perform technology demonstrations and analyses of proposed new capabilities	19.762	23.305	22.227	0.000	22.227
Articles:	-	-	-	-	-
FY 2021 Plans: Continue to develop RCI packages and rapid development efforts to incrementally incorporate software and hardware capability improvements, building on the P-8A Baseline to ensure ongoing relevance of the P-8A capability. Begin development of ASW weapon airworthiness and aircraft integration, Continue development and integration of AWS capability and RCI4 to include MAC, Acoustics, Non-Acoustic enhancements and Theatre ASW interoperability improvements.					
FY 2022 Base Plans: Continue to develop RCI packages and rapid development efforts to incrementally incorporate software and hardware capability improvements, building on the P-8A Baseline to ensure ongoing relevance of the P-8A					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	**Project (Number/Name)** 3368 / *P-8 Improvements*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
capability. Continue development of ASW weapon airworthiness and aircraft integration. Complete development and integration of AWS capability. Begin RCI4 development to include MAC Swap, SRL reliability improvements and develop CONUS-based repair capability. Begin RCI5 development with Survivability/Kill-Chain gap analysis. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 funding decrease of $1.078 Million includes a decrease in RCI efforts as the funding was reduced to account for the availability of prior year execution balances.					
Title: Conduct technical, cost, risk, test, and logistics analysis of proposed technologies ***Articles:*** ***FY 2021 Plans:*** Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. Increase in government led prototyping. ***FY 2022 Base Plans:*** Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Begin technical execution of LRASM government-led flight test and post-test analysis. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase of $4.273 Million is a result of new efforts in FY 2022 for LRASM flight test and airworthiness certification.	0.883 -	0.779 -	5.052 -	0.000 -	5.052 -
Accomplishments/Planned Programs Subtotals	20.645	24.084	27.279	0.000	27.279

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	**Project (Number/Name)** 3368 / *P-8 Improvements*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

The P-8A acquisition strategy is designed to deliver the required capabilities while introducing additional competition throughout the program. Government Lead Capability Integrator (LCI) control over the designs and information promote cost-effectiveness, rapid capability fielding, and reduced acquisition and life-cycle costs. Additionally, technologies for P-8 modernization improvements are compartmentalized and delivered independently of one another as a series of ECPs, without risk to the overall program schedule or procurement cost. This tailoring approach is effective in accommodating an emergent Fleet requirement and serve as an example that the flexibility inherent in this ECP-based Acquisition Strategy is responsive to Fleet customer concerns.

The P-8A Acquisition Strategy (AS), first approved by the Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)) at Milestone B in 2004, establishes the strategy to deliver full P-8A capability via three increments (then Block 1, Spiral 1 and Spiral 2 and now called Increments 1, 2, and 3). Increment 1 (Block 1) provided persistent ASW, ASuW, and ISR. Increment 2 (Spiral 1) provided improved ASW capabilities via multiple ECPs. On 4 April 2016, the MDA (USD AT&L) approved the incorporation of Increment 3 (Spiral 2 - under PE 0605504N) communications, Combat Systems Architecture, ASW Signals Intelligence, ASuW Net Enabled Weapon, Wideband SATCOM, Higher than Secret security enclave and Enhanced Multi-static Active Coherent (MAC-E) as ECPs (ECP 4-7) within the existing P-8A program as defined in the approved AS. RCI, rapid development, and future emergent capabilities will continue to be developed in an evolutionary manner similar to Increments 1-3 ECPs. Work is not initiated under this incremental acquisition process until the capabilities are first approved in P-8A Joint Capabilities Integration and Development System (JCIDS) documentation or the Navy's I&I CPP, approval obtained through an OPNAV Configuration Steering Board (CSB) and the phase of work approved by the Milestone Decision Authority (MDA). On 10 May 2016, P-8A was redesignated an ACAT 1C program and the MDA assigned to the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN (RDA)).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	**Project (Number/Name)** 3368 / *P-8 Improvements*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HW/SW Dev - P-8 Improvements/Increased Capability	Various	Various : Various	2.533	0.652	Nov 2019	0.332	Nov 2020	2.000	Mar 2022	-		2.000	-	-	-
Primary HW/SW Dev - ASW Enhancements	Various	Various : Various	3.551	1.099	Feb 2020	1.473	Feb 2021	1.217	Feb 2022	-		1.217	-	-	-
Primary SW Dev- Airborne Weapons Simulator/ Correction of Deficiencies/ RFCM	Various	Various : Various	19.238	10.473	May 2020	0.371	May 2021	0.000		-		0.000	-	-	-
Primary SW Dev - ASW Sonobuoy Receiver Digitization	C/CPFF	Boeing : Seattle, WA	0.000	3.800	Mar 2020	0.000	Mar 2021	0.000		-		0.000	-	-	-
Primary SW Dev -RCI	Various	Various : Various	1.400	1.800	Mar 2020	0.800	Mar 2021	5.129	Dec 2021	-		5.129	-	-	-
Primary SW Dev -LRASM	Various	Boeing : Seattle, WA	0.000	0.000		18.400	Mar 2021	11.482	Dec 2021	-		11.482	-	-	-
Sys Eng - Gov	WR	NAWCAD : Pax River, MD	3.825	1.938	Nov 2019	1.929	Nov 2020	2.399	Nov 2021	-		2.399	-	-	-
		Subtotal	30.547	19.762		23.305		22.227		-		22.227	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval - LRASM	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		4.318	Jan 2022	-		4.318	-	-	-
		Subtotal	0.000	0.000		0.000		4.318		-		4.318	-	-	N/A

Remarks

Begin technical execution of LRASM government-led flight test and post-test analysis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	**Project (Number/Name)** 3368 / *P-8 Improvements*

Management Services ($ in Millions)

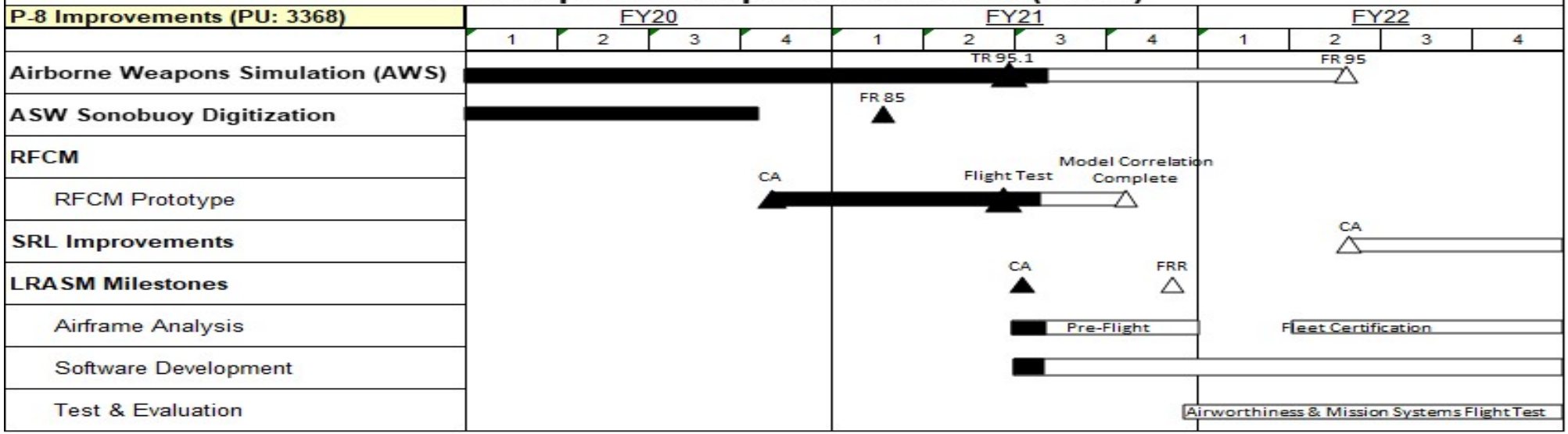
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Eng Tech Serv (NON-FFRDC)	Various	Various : Various	1.028	0.290	Nov 2019	0.180	Nov 2020	0.000		-		0.000	-	-	-
Mgmt Support Serv	C/CPFF	RBC : Alexandria, VA	0.925	0.333	Nov 2019	0.393	Nov 2020	0.500	Nov 2021	-		0.500	-	-	-
Program Mgmt Support	WR	NAWCAD : Pax River, MD	1.617	0.260	Nov 2019	0.206	Nov 2020	0.234	Nov 2021	-		0.234	-	-	-
		Subtotal	3.570	0.883		0.779		0.734		-		0.734	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.117	20.645		24.084		27.279		-		27.279	-	-	N/A

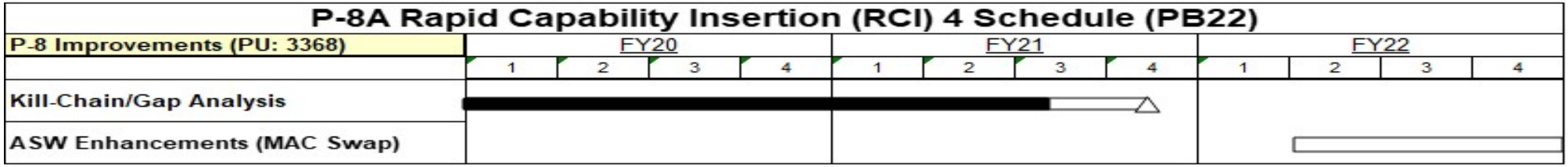
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	**Project (Number/Name)** 3368 / *P-8 Improvements*

P-8A Rapid Development Schedule (PB22)



P-8A Rapid Capability Insertion (RCI) 4 Schedule (PB22)



P-8A Rapid Capability Insertion (RCI) 5 Schedule (PB22)

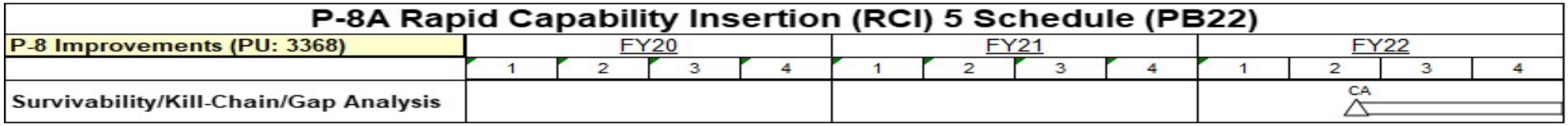


Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605500N / *Multi-Mission Maritime Aircraft (MMA) (P-8A)*	**Project (Number/Name)** 3368 / *P-8 Improvements*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
P-8 Improvements				
Rapid Development: Airborne Weapons Simulator: Test Release	2	2021	2	2021
Rapid Development: Airborne Weapons Simulator: Fleet Release	2	2022	2	2022
Rapid Development: ASW Digitization: Fleet Release	1	2021	1	2021
Rapid Development: RFCM Prototype: Contract Award	4	2020	4	2020
Rapid Development: RFCM Prototype: Development	4	2020	4	2021
Rapid Development: SRL Improvements: Contract Award	2	2022	2	2022
Rapid Development: SRL Improvements: Development	2	2022	4	2022
Rapid Development: LRASM: Contract Award	3	2021	3	2021
Rapid Development: LRASM: Pre Flight Analysis	3	2021	1	2022
Rapid Development: LRASM: FRR	4	2021	4	2021
Rapid Development: LRASM: Fleet Certification	2	2022	4	2022
Rapid Development: LRASM: Software Development	3	2021	4	2022
Rapid Development: LRASM: Testing	4	2021	4	2022
RCI4: Kill-Chain/Gap Analysis: Analysis	1	2020	4	2021
RCI4: ASW Enhancements: Development	2	2022	4	2022
RCI5: Survivability Gap Analysis: Contract Award	2	2022	2	2022
RCI5: Survivability Gap Analysis: Analysis	2	2022	4	2022